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THE *Economics* OF
Money
AND
Banking

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Money
AND
Banking

LESTER V. CHANDLER

PROFESSOR OF ECONOMICS
AMHERST COLLEGE



HARPER & BROTHERS
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THE ECONOMICS OF MONEY AND BANKING

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H-Z

To

MY FATHER

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Preface

THIS BOOK IS ADDRESSED PRIMARILY TO COLLEGE UNDERGRADUATES who are just beginning their formal study of money and banking. In selecting and presenting materials I have tried to keep the students' needs constantly in mind and have not attempted to write to my professional colleagues. This is not an exhaustive treatise on money and banking. No one book, not even one of 700 pages, can claim to deal exhaustively with the vast amount of theoretical, legal, institutional, and historical material that has been accumulated in this field. I do not believe that the newcomer should be forced to wade through an encyclopedic treatment of this broad and complex subject. I have therefore selected what I believe to be the most important principles and problems and have attempted to deal with them fully enough to clarify their significance.

My selection and treatment of materials reflect my very strong conviction that a student in this field should first understand the basic principles of money and banking and the relationship of the monetary and banking system to the functioning of the economy as a whole. I believe this is true whether the student's interest in the subject is purely cultural or is also vocational. The student whose interest in the subject is non-vocational should first master the principles and the interrelations of the monetary and banking system with the other parts of the economy that he will study in other courses. A detailed study of the complex details should come later. The same is no less true of those who are considering banking or finance as a career. Bankers, if they are to be wise business leaders, must understand not only the technical details of bank operation and management but also the effects of their actions on the functioning of the economy and the effects of

government monetary and financial policies on the various parts of the economy, including the banks. And I believe that a study of the technical problems of bank operation and management should come only after the student is well grounded in the economics of money and banking. It is for these reasons that I have stressed the theoretical aspects of the subject. Much institutional and historical material is included, but I have tried to use it to illuminate the functioning of the system.

I wish to acknowledge gratefully the generous help that I have received while writing this book. Professor Philip E. Taylor of the University of Connecticut read most of the chapters and made many suggestions that led to their improvement. Mr. Andrew L. Kelemen was of great assistance in gathering materials, typing, and otherwise putting the manuscript in shape for the publisher. Without his loyal and efficient help my task would have been much more laborious and time consuming. For any shortcomings and errors that remain I have only myself to blame.

L. V. C.

January, 1948

THE *Economics* OF
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The Functions of Money in an Economic System

WALTER LEAF, THE DISTINGUISHED ENGLISH BANKER, ONCE declared that there are three main causes that dispose men to madness: love, ambition, and the study of currency problems. And he added that the last was the worst. Mr. Leaf's use of the term "study" was probably an error. Love and ambition appear to induce madness not because of their strain on the intellect, but because of their ability to overexcite the emotions. The same seems to be true of money; at any rate the general reaction to monetary problems has usually been more emotional than intellectual. In far too many cases people have filled the atmosphere with ambiguous and emotion-laden terms such as "honest dollars," "baloney money," "the American Way," "sound money," and "the natural laws of finance" to such an extent that the whole subject has been obscured rather than clarified. The widespread failure to understand money (including banking and credit) must be largely attributed to this unscientific approach, for we certainly do not lack experience with money, and the subject is not difficult if approached without prejudice and in an analytical way.

We can facilitate our understanding of the integrated subjects of money, credit, and banking by keeping three facts constantly in mind. The first is that these mechanisms are significant only in their relationship to the rest of the economic

system. Their purpose is to serve the system, the manner of their functioning inevitably affects the rest of the system, and changes in the rest of the system inevitably affect them. This strongly suggests that there may not be any one set of monetary and financial institutions and policies that is "best" for all periods and places, but that the "best" one is that which is best adapted to all the economic and social conditions of the particular time and area. An unchanging monetary and banking system in the midst of an otherwise dynamic economy is likely to yield unfavorable social results, if indeed it were possible of attainment.

The second fact is that the monetary and financial institutions existing at any given time can usually be explained only in terms of a long series of historical events. It would perhaps be an exaggeration to say that our own monetary and financial system "just grew" like Topsy, but its structure and policies are hardly those that we would adopt if we were to build it anew without reference to the historical events of the past 200 years. In this field, as in many others, old ideas change but slowly, habitual ways of doing things are not altered overnight, and institutions undergo abrupt change only in time of crisis—and sometimes not even then. For example, no one can explain our recent silver policy without reference to the fact that we were on a bimetallic standard in the early nineteenth century, or our banking structure without reference to the rise of state-chartered banks before the Civil War, or our present controversies over the gold standard without reference to the fact that this system was adopted during the latter part of the nineteenth century only after long and bitter political fights. History can contribute much to our understanding of contemporary monetary problems.

The third fact is concerned with terminology. The careful student must beware of terminology in this field. Though we must, for economy's sake, use names for things, these names have an unfortunate tendency to remain fixed while the things to which they apply undergo marked changes. The unwary may thus make the mistake of assuming that a generalization that is valid for things called by a certain name at one time is equally valid for the thing answering to the same name at

another time. For example, the United States was "on the gold standard" in both 1913 and 1948, yet the monetary systems of the two periods were very different and yielded quite different results. Seventeenth-century colonial "banks" were markedly different in their operations from the checking deposit "banks" of 1948. A well-managed paper currency bears hardly a family resemblance to the famous paper issues of the American Revolution. Static names must not be allowed to impede our analysis of a constantly, though sometimes slowly, changing monetary system.

THE BASIC FUNCTION OF MONEY

(Money has but one fundamental purpose in an economic system: to facilitate the exchange of goods and services—to lessen the time and effort required to carry on trade.) A man living and working in complete isolation from others has no use for money. He cannot eat it, or wear it, or use it to promote his productive processes; having no occasion to exchange either goods or services with others, he has no need for money. Even if a dozen people lived together in isolation from all others the use of money would be of only limited benefit to them; they could barter their goods and services among one another with only little loss of time and effort. As groups become larger, however, and wish to increase the degree of specialization and the size of the trade area, they find the direct barter of goods and services increasingly inconvenient and increasingly wasteful of time and effort. They therefore search for something which will enable them to escape the wasteful processes of barter; they invent money.

(We may say, then, that the sole purpose of money in the economic system is to enable trade to be effected as cheaply as possible in order to make feasible the optimum degree of specialization, with its attendant increase of productivity. We are all familiar with the high degree of specialization that characterizes modern economies—specialization of persons, of business firms, of regions, and of types of capital. We know that without this high degree of specialization—which enables

us to utilize the various regions to maximum advantage, to make the most advantageous use of native abilities, to develop skills, to amass huge amounts of specialized and useful knowledge, and to employ large aggregations of specialized capital—our productive power and living standards would be far below their present levels. But this specialization would be impossible without an equally highly developed system of exchange or trade. (Money is productive, therefore, in the sense that it is an essential part of the modern exchange mechanism and thereby facilitates specialization and production.)

Since money has but one basic function in the economy—to facilitate trade to the utmost—there is but one broad test of a monetary system: How well does it facilitate trade? All questions as to the form of money must take a subordinate position; monetary forms are important, but their importance derives solely from their effects on functioning. That monetary system is best which promotes exchange most.

BARTER EXCHANGE

We have carefully avoided saying that exchange is impossible without money. Trade can be effected, of course, by the direct barter of goods and services among people. Primitive trade was often carried on in this way, and bartering is not unknown even now. Yet pure barter is so wasteful of time and effort that little trade would be feasible if this were the only available method of exchange. Since the shortcomings of pure or direct barter constitute the only reason for the invention and use of money they will be described at some length.

(The first serious shortcoming of pure barter, with neither money nor the concept of a monetary unit available, is the lack of any common unit in terms of which to measure and state the values of goods and services.) (By the “value” of a good or service is meant its “worth,” the quantity of other goods and services that it can command in the market.) In this situation the value of each article in the market could not be stated simply as one quantity, but would have to be stated in as many quantities as there were kinds and qualities

of other goods and services in the market. For example, if there were 500,000 kinds and qualities of goods and services in the market, the value of each would have to be stated in terms of 499,999 others. Moreover, no meaningful accounting system would be possible.) A balance sheet would consist of a long physical inventory of the kinds and qualities of the various goods owned and another inventory of those owed; consequently the net worth of the person or firm could be ascertained, if at all, only by a prolonged and tedious study of the numerous barter rates of exchange prevailing in the market. Profit and loss statements would be equally difficult to draw up and interpret. A firm could only list the various kinds and qualities of goods and services acquired during the period as income and those paid out as expenses, so that again the net results could be discovered, if at all, only by a laborious study of barter rates of exchange. It is almost inconceivable that even a small department store, not to mention General Motors Corporation, could keep meaningful accounts in the absence of a monetary unit.

(The second serious disadvantage of barter is often called "the lack of a double coincidence of wants." Stated more simply, it would happen only rarely that the owner of a good or service that he wished to barter could easily find anyone who both wanted his commodity more than anything else and possessed the commodity that our trader wanted more than anything else.) For example, suppose that he owns a three-year-old draft horse that he wishes to trade for a certain kind of two-wheeled cart. To find someone who already owns or can build exactly the kind of cart that he wants and who is willing to trade it, and who also wants the kind of horse that is being offered, is likely to be a laborious and time-consuming process, if such a person exists at all. The horse owner will probably have to accept something that he wants less than the cart or else carry through a number of intermediate barter transactions; he may have to trade the horse for a cow, the cow for a boat, the boat for some sheep, and the sheep for the desired cart. (Barter presents even more serious difficulties when the articles to be exchanged are not of the same value and cannot be divided without loss of value.) Imagine, for

example, the plight of the owner if he wanted to trade his horse for a pair of overalls, a hat for his wife, three dishes, an aluminum skillet, 50 cartridges, schoolbooks for his children, and numerous other inexpensive articles.

(The third disadvantage of pure barter—the lack of any satisfactory unit in terms of which to write contracts requiring future payments—grows out of the two disadvantages already noted. Such contracts are an essential part of an exchange economy; people must enter into agreements as to wages, salaries, interest, rents, and other prices extending over a period of time.) But in a pure barter economy these future payments would have to be stated in terms of specific goods or services. (Though this would be possible, it would lead to three grave difficulties: (1) It would often invite controversy as to the quality of the goods or services to be repaid. (2) The two parties would often be unable to agree on the specific commodity to be used for repayment. (3) Both parties would run the risk that the commodity to be repaid would increase or decrease seriously in value over the duration of the contract. For example, wheat might rise markedly in value, to the debtor's regret, or decrease markedly in value, to the creditor's regret.

(The fourth disadvantage of pure barter, which also results from its first two shortcomings, is the lack of any method of storing generalized purchasing power.) People could store purchasing power for future use only by holding specific commodities or claims against specific commodities. This method of storing purchasing power has often been used and, as we shall see later, is used extensively even today. Yet it has serious disadvantages when it is the only method available. The stored commodity may deteriorate (or appreciate) in value, its storage may be costly, and it may be difficult to dispose of it quickly without loss if its holder wishes to buy something else.

Because of the four disadvantages outlined above, pure barter is a highly inefficient method of trade. It was to overcome these difficulties that virtually every society invented some kind of money early in its development.

THE SPECIFIC FUNCTIONS OF MONEY

Money serves its basic purpose as "the great wheel of circulation, the great instrument of commerce" by performing four specific functions, each of which obviates one of the difficulties of pure barter described above. These functions are to serve as: (1) a unit of value, (2) a medium of exchange, (3) a standard of deferred payments, and (4) a store of value. The first two are usually called the *primary* functions of money. The last two are called *derivative* functions, because they are derived from the primary functions.)

Money as a Unit of Value

(The first function of money has been given many names, of which the most common are "unit of value," "standard of value," "unit of account," "common measure of value," and "common denominator of value." Through all these names runs one common idea: The monetary unit serves as the unit in terms of which the "value" of all goods and services is measured and expressed.) As soon as a group develops a monetary unit—such as a dollar, a peso, a franc, a pound sterling, a pengö, or a boliviano—the "value" of each good or service can be expressed as a "price," by which we mean the number of monetary units for which it will exchange. For example, we say that the "value" of a certain hat is \$10, that beef of a certain grade has a "value" of \$1 a pound, and so on. Ours is certainly a "pecuniary" society in the sense that values typically are measured and expressed in monetary units. Moralists often complain that even human virtues too often have their "price."

(The practice of measuring the values of goods and services in monetary units unquestionably simplifies the problem of measuring the exchange values of things in the market. One has merely to compare their relative prices.) For example, if carbon steel is \$4 per hundredweight and corn is \$1 per bushel, a hundredweight of steel is worth 4 bushels of corn. It also

simplifies accounting. Assets of all kinds, liabilities of all kinds, income of all kinds, and expenses of all kinds can be stated in terms of common monetary units to be added or subtracted.

(Money is not the only common unit of measurement employed in the economic system. Units such as feet, inches, and meters are used to measure linear distance; ounces, grams, pounds, and short tons to measure weight; gallons, liters, and barrels to measure liquid volume; and so on. These units of physical measurement are themselves constant quantities. Confusion would surely result if pints, inches, and ounces should shrink 25 per cent one year and expand 10 per cent the next. Yet the unit of value (money), perhaps the most important unit of measurement in the entire economic system, has too often undergone wide fluctuations. The dollar has had a high value at one time (that is, an ability to purchase large amounts of goods and services in the market) and much lower values at other times (that is, an ability to buy only smaller quantities of goods and services). To be a satisfactory measure of value, the monetary unit itself must maintain a relatively stable value, or purchasing power. Some of the consequences of a fluctuating monetary unit will be discussed later.

Money as a Medium of Exchange

Various names have been given to the second function of money—"medium of exchange," "medium of payments," "circulating medium," and "means of payment." This function of money is served by anything that is generally (not necessarily universally, but very widely) acceptable by people in exchange for goods and services. The "thing" may be porpoise teeth, bits of gold, copper coins, pieces of paper, or credits on the books of a bank; the essential requirement is that people in general be willing to accept it in exchange for their goods and services. When a group has developed such a mechanism its members need no longer waste their time and energy in barter trade. Our horse owner can simply sell his horse to the person who will give him the most money for it and then buy his supplies from those who will sell for the least money. The Ford worker need not barter his bolt-tightening

services for the various things that he needs; he can sell his services for money and spend the money as he sees fit. (In the last analysis all trade is, of course, barter; one good or service is traded indirectly for others, with money acting as the intermediary. But) by serving this purpose money greatly increases the ease of trade.

Money is often referred to as "generalized purchasing power" or "a bearer of options." This emphasizes the freedom of choice that the use of money affords. The owner of a good or service need not secure his supplies from the people to whom he trades his good or service; he can use his money to buy the things he wants most, from the people who offer the best bargain, and at the time he considers the most advantageous.

(Here, again, money can function properly only if it maintains a relatively stable purchasing power. If a dollar is a bearer of fluctuating amounts of generalized purchasing power it cannot fail to cause confusion and injustice in trade.)

Money as a Standard of Deferred Payments

(As soon as money comes into general use as a unit of value and a medium of payments it almost inevitably becomes the unit in terms of which deferred or future payments are stated. Modern economic systems require the existence of a large volume of contracts of this type. The greater part of these are contracts for the payment of principal and interest on debts, in which future payments are stated in monetary units. Some of these contracts run for only a few days or a few months, many of them run for ten years or more, and some run for a hundred years or more. The federal debt in 1947 was more than \$250 billion, of which about \$22 billion is not due until 1972. In addition there are large state, municipal, corporation, farm, and personal debts, virtually all of which are stated in monetary units. There are also many contracts other than debts which require future payments that are fixed or semi-fixed in terms of monetary units—dividends on preferred stock, salary contracts, long-term leases on property, and so on.

We have already noted the disadvantages, under a barter system, of writing such contracts for future payment in terms of specific commodities; there are great advantages in writing them in monetary terms. But money is a satisfactory standard of deferred payments only to the extent that it maintains a constant purchasing power through time. If money increases in value through time, it injures the groups who have promised to pay fixed amounts of money and gives windfall gains to those who receive these fixed amounts. If, on the other hand, money loses value through time, it injures those who have agreed to receive the fixed amounts and lightens the burden of payers.) Suppose, for example, that in 1948 Reilly borrowed \$1000 from MacGregor, promising to repay him in 1968. MacGregor gave Reilly a certain amount of purchasing power in 1948. If in 1968 a dollar will buy only half as much as it did twenty years earlier (if prices, in general, have doubled), Reilly will return to MacGregor only half as much purchasing power as was lent to him. The shoe will be on the other foot, however, if the value of the dollar doubles during the period (if prices, in general, fall by half); Reilly will have to return twice as much purchasing power as he borrowed. Because of the widespread prevalence of such contracts, and for many other reasons as well, variations in the value of money have serious social consequences.

Money as a Store of Value

We have already noted the disadvantages of holding specific commodities as a store of value. As soon as money comes to be used as a unit of value and a generally acceptable means of payment, it is almost certain to be widely used as a store of value. The holder of money is, in effect, a holder of generalized purchasing power which he can spend through time as he sees fit for the things he wants most to buy. He knows that it will be accepted at any time for any good or service and that it will remain constant in terms of itself. Money is thus a good store of value with which to meet unpredictable emergencies and especially to pay debts that are fixed in

terms of money. Ordinarily, however, it does not yield an income to its holder.

Money is not the only store of value. One can store value for future use by holding short-term promissory notes, bonds, preferred stocks, common stocks, household furniture, houses, land, or any other kind of valuable goods. The principal advantages of these things as a store of value are: (1) They often yield an income in the form of interest, dividends, rent, or usefulness (as in the case of an auto or a suit of clothes), and (2) they sometimes rise in value in terms of money. Their principal disadvantages as a store of value are: (1) They sometimes involve storage costs; (2) they may depreciate in terms of money; and (3) they are "illiquid" in varying degrees, for, not being generally acceptable as money, they may be converted into money quickly only at a loss. Since each person or firm is free to choose the form in which he will hold his store of value, he usually distributes his holdings between money and other things in the proportions that seem most advantageous to him at the time. These proportions obviously vary from firm to firm, from person to person, and from time to time for each firm or person. Such decisions are much influenced by expectations as to the future behavior of the value of money, for money has often proved to be a capricious store of value, appreciating during some periods and depreciating in others.

Looked at solely from the individual point of view, this ability to change at will one's store of value from money to goods or from goods to money has unquestioned advantages. Each person can secure that combination of assets which on the whole appears most advantageous, taking into consideration income, safety, and liquidity. From the social point of view, however, this option can have grave disadvantages. A general shift of preference away from money to goods can lead to a general rise of prices, and a general shift of preferences away from goods to money can lead to a general decline of prices—to a rise in the value of money.)

(To make the same point in other terms, the individual undoubtedly finds it convenient to be able to spend his money

whenever he wishes—to part with it immediately or to hold at least part of it for an indefinite period. But such individual options can lead to serious economic upheavals. When, as sometimes happens, there is a general tendency for people to spend their money more slowly, to hold it a longer time before spending it, the flow of money expenditures is likely to decrease, thereby lowering prices and also decreasing the national income and the level of employment. On the other hand, a general tendency to spend money faster, to hold it only a shorter time before spending it, is likely to swell the flow of money expenditures and to raise the level of prices. Here, as in so many other cases, social control faces the problem of reconciling the freedom of the individual with the social welfare.

THE UNPRECEDENTED IMPORTANCE OF MONEY

Money is by no means a recent invention. It is certainly as old as recorded history, and some form of it seems to evolve as soon as a group finds a significant amount of specialization and exchange advantageous, which is usually early in group life. Nor are monetary problems less ancient; historians have yet to find a society with a perfectly functioning money, and many of the ancient monetary disorders were serious. Yet money is of unprecedented importance in modern capitalistic economies. This is due to two interrelated factors: (1) the unprecedented extent of specialization and exchange, and (2) the nature of economic motivations under capitalism.

The rapid rise of specialization and trade in the United States has been outlined by Walton Hamilton:

In the United States in fewer decades than the fingers on the hands has occurred a social revolution. An economy of small farms and petty trade, with a bit of commerce on the fringe, has been converted into "the great industry." At the end of the Civil War there was a coastal plain with a few cities, a back country with a dotting of small towns, and a West which invited settlement. The small, all but isolated, farm was dominant. The family, committed to a subsistence agriculture, undertook to produce their own livings with their own hands and

formed an all-but-priceless economy. The household group was well or poorly off as they were hard working, prudent, thrifty, and had the break of the seasons. The weather could bountifully give or stingily withhold; for, because of an undeveloped technique in agriculture, it was still nature and not the market which made years fat or lean. The face of the land was covered with these almost self-contained entities. Almost—for the town was near at hand, to which the farmer took his surplus of produce; discovered the strange phenomena of the market, money, and price; engaged in verbal combat in haggling over a bargain; established an indirect contact with places far removed; and brought away tobacco, tools, and the subscription to the county weekly.¹

Even in the period before the Civil War money was not unimportant in this country. The farmer's enjoyment of life, if not his possession of the necessities, depended to a considerable extent on the prices of farm products, the prices of the things he bought, and the real burden of his money debts. Moreover, there were already many people in the towns and cities whose dependence on money and markets was greater than that of the farmer. Yet, as Hamilton indicates, the farmers were to a considerable extent self-sufficient, and even the city dwellers were less dependent on money and markets than they are today. A social revolution has indeed occurred since that time. In 1840 about 70 per cent of our population was on farms; this figure has now dwindled to 15 per cent and may fall still further. And farming itself has experienced a revolution. The self-sufficient farm family is now the rare exception; to a constantly increasing extent the farmer is a specialized businessman, producing for sale in the market and relying on the market for a large part of the equipment and supplies with which to carry on production as well as for most of the things with which to satisfy his family's wants. He, too, gets a living by obtaining money for his production and spending the money for tractors, implements, building materials, gasoline, automobiles, clothing, food, and so on. Any lingering illusion that the American farmer was independent of the market vanished during the great depression following 1929. The great numbers of our people who are engaged in mining,

¹ Walton Hamilton, *Price and Price Policies*, McGraw-Hill, New York, 1938, p. 7.

manufacturing, transportation, communication, marketing, and service are almost completely dependent on markets and money. For them, getting a living is a process of securing money in return for their specialized goods or services and then spending it for the things that they want. Anything that interrupts the flow of their money income is likely to cause serious suffering and frustration.

A second reason for the unprecedented importance of money is the nature of economic motivations under the capitalistic system. The leaders in this system are the enterprisers—those who determine the policies of business firms, whether they are individual enterprises, partnerships, corporations, or co-operatives. They are the ones who, in the first instance, determine the size and locations of plants, the type of goods to be produced, the rate of output, and the amount of employment to be offered. Their motivation is to make money, as much money as possible; and they make goods only to the extent that this process will contribute to their objective of making money. If the amount of money that will be spent for their output is so great relative to their costs as to enable enterprisers to maximize their profits by using all the available productive factors, something like full employment will be attained. If, however, money spendings for their output are so small relative to their costs that they will maximize their profits or minimize their losses by stopping far short of full output, they are likely to leave large numbers in the ranks of the unemployed. One of the principal objectives, if not the dominant objective, of monetary policy should be the maintenance of spendings for output at such levels as to provide a high and stable level of output and employment.

MONEY AS A CAUSATIVE FACTOR IN THE ECONOMY

It is important neither to underestimate nor to overestimate the effects of money on the functioning of economic systems. Most economists are now agreed that the so-called “classical economists” who dominated economic thinking in the nineteenth and early twentieth centuries and who were interested

primarily in long-run economic analysis, were guilty of seriously underestimating the effects of money on the economy. These economists realized, and even stressed, the importance of money as a labor-saving device and described, as has already been done in this chapter, the serious difficulties of effecting exchanges by means of barter. But they insisted that the use of money did not normally affect the operation of the economy, aside from its facilitation of exchange. They held that in a money economy the total amount of employment, the volume of production, the types and proportions of the various goods and services produced and consumed, the exchange values of the various goods and services in the market, and the distribution of real wealth and income among the members of the community are normally the same as they would be in a highly developed and efficient barter economy, if such an economy could be devised. The classical economists were so sure of the validity of this contention that they couched much of their analysis in terms of barter, despite the fact that they were attempting to explain the functioning of a money economy.

This view of the significance, or rather the insignificance, of money was stated most clearly by John Stuart Mill:

It must be evident, however, that the mere introduction of a particular mode of exchanging things for one another by first exchanging a thing for money, and then exchanging the money for something else, makes no difference in the essential character of transactions. . . .

There cannot, in short, be intrinsically a more insignificant thing, in the economy of society, than money; except in the character of a contrivance of sparing time and labor. It is a machine for doing quickly and commodiously, what would be done, though less quickly and commodiously, without it; and like many other types of machinery, it only exerts a distinct and independent influence of its own when it gets out of order.

The introduction of money does not interfere with the operation of any of the Laws of Value laid down in the preceding chapters. The reasons which make the temporary or market value of things depend on the demand and supply, and their average and permanent values upon their cost of production, are as applicable to a money system as to a system of barter. Things which by barter would exchange for one another, will, if sold for money, sell for an equal amount of it, and so

will exchange for one another still, though the process of exchanging them will consist of two operations instead of only one. The relations of commodities to one another remain unaltered by money; the only new relation introduced is their relation to money itself; how much or how little money they will exchange for; in other words how the Exchange Value of money itself is determined.²

If money always performed its functions perfectly the classical economists would have been right. It would be neutral in its effects and therefore could be ignored in explanations of the functioning of the economy, or at most accorded only the amount of attention that is given each of the hundreds of other labor-saving devices employed for economic purposes. Unfortunately, however, no monetary system yet evolved has functioned perfectly or even approached perfection; each has displayed an unfortunate proneness to "get out of order" and to exert "a distinct and independent influence of its own." The classical economists recognized this fact, of course, but they thought that monetary disorders were infrequent enough and the resulting disturbances small enough to be ignored without invalidating an analysis couched in terms of barter, particularly since this analysis was concerned with long-run rather than short-run phenomena. Modern monetary theorists, on the other hand, have come to believe that money is virtually always "out of order," though in different ways and to a fluctuating degree, and that this malfunctioning of money produces significant effects upon the aggregate volume of employment and production, the relative amounts and exchange values of the individual commodities produced and sold, and the distribution of real wealth and income among the members of the community. These effects are particularly important in the short run and are capable of altering significantly the long-run behavior of the economy, for the long run is, after all, made up of a series of short runs, each of which is affected by monetary developments. It is because of this influence on the amounts and types of employment and production and on the distribution of real wealth and income that money is such an important subject of study.

But if the classical economists erred in underestimating the

² John Stuart Mill, *Principles of Political Economy*, Book III, chap. 7, ¶ 3.

influence of money, we must avoid the opposite error of over-emphasis. Certainly money and monetary policy are not the only determinants of economic well-being. Some monetary reformers, noting that the ability of an individual to obtain goods and services depends on the amount of money that he can command, have erroneously assumed that the same holds true for an entire nation. They have therefore proposed to abolish poverty and usher in the economic millennium by great expansions of the money supply. Some would try to amass great stores of gold, some prefer silver, some would speed up the printing presses and turn out great issues of paper money, some would inflate the supply of bank money, and some would use all available methods of expansion. We have already noted that an expansion of the money supply and of money spendings may be used to expand production and real wealth if it occurs in a period of unemployment. Economic policy must not ignore this fact. But neither can it ignore the fact that the most that monetary policy can possibly accomplish—and it cannot accomplish this without the aid of other wise economic policies—is to maintain full and stable employment. It cannot compensate for lack of natural resources, or lack of capital goods, or a backward state of technology, or sluggish and unintelligent labor, or unimaginative and unenterprising economic management, or unwise general economic policies on the part of governments. In other words, a wise monetary policy may help to raise and maintain the actually realized rate of production closer to the potential productive capacity, but it is not one of the major determinants of this potential capacity. Nor is it by any means the only factor determining the distribution of wealth and income among the members of the community. Our zeal to secure wise monetary policies must not blind us to the need for wisdom in our other economic policies.

SELECTED 'READING

The following selected sources may be consulted for further information concerning various monetary and banking subjects. Be sure to become familiar with *Federal Reserve Bulletins* and other current material.

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Bank for International Settlements, *Annual Reports*.

Board of Governors of the Federal Reserve System:

Annual Reports, 1914 to date.

Federal Reserve Bulletin (monthly)

This is the most valuable single source of current information concerning monetary and banking developments both here and abroad.

Banking and Monetary Statistics (through 1941. Current statistics in *Federal Reserve Bulletins*).

Miscellaneous Publications.

Chase National Bank of New York, *Monthly Bulletins*.

Comptroller of the Currency, *Annual Reports*.

Director of the Mint, *Annual Reports*.

Federal Deposit Insurance Corporation, *Annual Reports*.

These reports contain excellent statistics and analyses of the structure and condition of American banks.

Federal Reserve Banks, *Annual Reports* and *Monthly Bulletins*.

These are valuable sources of information concerning developments in each of the 12 Federal Reserve districts.

International Bank for Reconstruction and Development, *Annual Reports*.

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League of Nations, Economic and Financial Section, *Annual Surveys* and various other publications.

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Price Levels and the Value of Money

WE SAW IN THE PRECEDING CHAPTER THAT MONEY IS PRIMARILY concerned with value. It serves as a unit for measuring values, as a medium for circulating or exchanging values, as a unit in terms of which future payments of value are stated, and as a store of value. The purpose of this chapter is to discuss the meaning of the value of money, the factors determining the value of money, and some of the most important consequences of changes in the value of money. The last two subjects are discussed here in only a preliminary way; they will be treated much more fully in later chapters.

MEANING OF THE VALUE OF MONEY

By the value of money we mean its purchasing power over goods and services in the market, the quantity of goods and services that each monetary unit (for example, a dollar) will buy. If a dollar will buy a large quantity of goods and services it has a high value; if it will buy only a small quantity of goods and services it has a low value. It is obvious that the value of money is closely related to the general or average level of prices, for a "price" is merely the number of monetary units required to buy a good or service. In fact, the value of money varies reciprocally with the general or average level of prices.

If the price level doubles, two dollars will be required to purchase what one dollar would have purchased before; the purchasing power of each dollar has fallen by half. If the price level falls by half, half a dollar will buy what would have required a dollar before; the purchasing power of the dollar has doubled. Because of the general practice of expressing values in terms of prices, most discussions of this subject are in terms of "the price level" or "the general level of prices" rather than in terms of the "value of money." This should cause no confusion, however, if one remembers that a rise in the price level is the same thing as a fall in the value of money and that a decline in the price level is the same thing as an increase in the value of money; Neither is in any sense the "cause" of the other; they are merely the same thing stated in different terms.

It must be emphasized that whether we make our analysis in terms of the value of money or of the general level of prices we are dealing with an average of the prices of goods and services and not with the price of an individual good or service. For example, the general level of prices may remain stable despite a fall in the price of wheat, the decline in wheat prices being offset by the rise of another price or of other prices. A stable price level does not preclude readjustments in the prices of individual goods and services relative to each other. The proponents of a stable value of money are certainly not advocating inflexible prices for each individual product whose price is included in the general price level. They recognize the functions of changing individual price relationships in the economic system. They know that the price of an individual good or service should sometimes change *relative to the prices of other goods and services* in order to ration it, to adjust its supply and demand to each other, and to adjust the incomes of its producers. But most of them believe that these adjustments of individual prices relative to each other can be made most easily if the average level of prices remains approximately constant.

The use of averages in the analysis of prices, like the use of averages in any other field of analysis, has both advantages and disadvantages. Its great advantage is in permitting sim-

plicity of statement. In an economy with hundreds of thousands of individual wholesale prices, it is convenient to summarize price developments from 1926 to 1932 by saying that the general level of wholesale prices in the United States declined by 35 per cent, that the purchasing power of the dollar rose by 54 per cent in the wholesale market. This statement is simple, and it conveys an important fact about the behavior of prices. Though for convenience we shall use averages in our analysis, we must constantly remember that averages are generalizations and have the shortcomings of generalizations. The first of these shortcomings is that an average of price changes fails to reveal the fact that individual prices change at widely different rates. If every price in the economic system responded in exactly the same way to the factors that change the general price level, fluctuations in the value of money would be of little social consequence. Each person would merely handle more or fewer monetary units without any change in his total purchasing power, for his money wealth and money income would vary proportionally with the prices of the things he bought. Actually, however, individual prices behave quite differently. Some move promptly and rapidly, others move only slowly and after long delays, and still others range between the two extremes. For example, we know that some prices are fixed for long periods by contract (such as debts and rentals), whereas others are free to change every day or even every hour, and that even the prices that are legally free to change show widely varying behavior. Compare the sluggishness of salaries of office workers with the sensitivity of meat prices, or the inertia of steel prices with the gyrations of the prices of most agricultural products during periods of general price movements. An analysis of changes in the general level of prices is important, but it will be largely sterile if it does not emphasize the non-uniformity in the behavior of the individual prices that make up the general average.

Because of the non-uniform behavior of individual prices we must constantly remember that averages are man-made and that their behavior depends on the individual prices included in them and on the weight given to each price. An

average that includes a larger number of highly sensitive prices or that otherwise gives a heavy weight to them will obviously undergo wider and more rapid movements than one which weights sluggish prices more heavily. The various price indexes that we shall study later show this clearly.

Having looked at the meaning of the value of money and the general level of prices, we can now discuss index numbers which are used to measure and express changes in these quantities.

PRICE INDEXES

Before specifically discussing index numbers of prices we should consider the nature and purpose of index numbers in general. (They are often called "relatives," because instead of measuring and stating absolute magnitudes they measure and state magnitudes *relative to* some quantity that is taken as a *base*, or basis, for comparison.) They are usually stated as percentages. Thus, index numbers applied to data for various periods or points of time show in percentage terms the magnitudes of data for the various times relative to the magnitude on the base date. For example, let us suppose that the proud village of Excelsior wishes to construct index numbers of its population, and that its population on June 30 of each year was as follows:

Year	Population
1900	200
1910	300
1920	700
1930	900
1940	1100

It could use any year it wished as a base date. Let us suppose that it selects 1920 for this purpose. The index number for 1920 will be 100.0: $\left(\frac{700}{700} \times 100 = 100\right)$. The index number for 1910 will be 42.8: $\left(\frac{300}{700} \times 100 = 42.8\right)$. The index number

for 1930 will be 128.6: $\left(\frac{900}{700} \times 100 = 128.6\right)$. And so on. A table of these indexes will appear as follows:

POPULATION OF EXCELSIOR
1920 = 100

Date (June 30)	Index
1900	28.6
1910	42.8
1920	100.0
1930	128.6
1940	157.1

These index numbers express the population of Excelsior as percentages of its population in 1920. In a similar way price indexes show the height of selected groups of prices at various points of time *relative to* their height at some point of time that is taken as the "base period."

Index numbers are so convenient that they are used in almost all fields of study. Some of the most widely known index numbers in economics, other than price indexes, are those of industrial production, freight carloadings, department store sales, national income payments, construction contracts awarded, industrial employment, and factory payrolls.¹ These have proved to be highly valuable tools for analyzing the behavior of these magnitudes through time.

Though price indexes have been constructed in almost every advanced country, we shall confine our discussion to those used in the United States. Dr. Carl Snyder has constructed a price index with a very broad coverage. It shows the movements of a weighted average of prices of industrial products, prices of farm products at the farm, retail food prices, rents, miscellaneous costs of living, transportation costs, realty prices, security prices, equipment and machinery prices, hardware prices, automobile prices, and wages. This is "a general level of prices" in the broadest sense. Most economists now believe, however, that such a broad index

¹ See any recent *Federal Reserve Bulletin*. See also D. H. Davenport and F. V. Scott, *An Index to Business Indices*, Business Publications Inc., Chicago, 1937.

that includes such heterogeneous prices with such widely varying behavior is of only little use for analytical purposes. The trend in recent years has been toward a larger number of price indexes, each with a narrower coverage; hence we now have indexes of wholesale prices, retail prices, the cost of living, common-stock prices, and so on. It is more fruitful to analyze changes in the prices of the various classes of goods and services, noting both similarities and dissimilarities in their movements.

Two of the best-known price indexes in this country are the wholesale price index and the cost-of-living index, which are compiled by the United States Bureau of Labor Statistics. The wholesale price index, which uses 1926 as its base period, shows the movements of the weighted average prices of some 900 of the most important commodities in the wholesale market.² The cost-of-living index, which is more accurately called a "consumers' price index for moderate-income families in large cities," shows the weighted average movement of 198 prices entering into the cost of living of this group.³ This index uses the period 1935-39 as a base.

PRICE LEVELS IN THE UNITED STATES

The dollar has been far from a stable monetary unit. This is indicated by Fig. 1, which shows the behavior of wholesale prices in the United States since 1808.⁴ Indexes of retail

² The materials on price indexes are voluminous. For an interesting discussion of the history of wholesale price indexes and of some of the problems in their construction, see *Index Numbers of Wholesale Prices in the United States and Foreign Countries*, U. S. Bureau of Labor Statistics Bulletin No. 284, Government Printing Office, Washington, 1921. For a more recent description of wholesale price indexes in the United States and of the methods used in weighting, see *Wholesale Prices, 1931*, U. S. Bureau of Labor Statistics Bulletin No. 572, Government Printing Office, Washington, 1933.

³ For good discussions of this index, see *Monthly Labor Review*, August, 1940, pp. 365-404; *Changes in Cost of Living in Large Cities in the United States, 1913-1941*, U. S. Bureau of Labor Statistics Bulletin No. 699, Government Printing Office, Washington, 1941; "Report of President's Committee on Cost of Living," *Monthly Labor Review*, January, 1945, pp. 168-174.

⁴ *Wholesale Prices, 1931*, U. S. Bureau of Labor Statistics Bulletin No. 572, p. 14. The index since 1890 is the Bureau's regular weighted series. Indexes for the earlier period are not strictly comparable but are believed by the Bureau to reflect the trend of wholesale prices with a fair degree of accuracy.

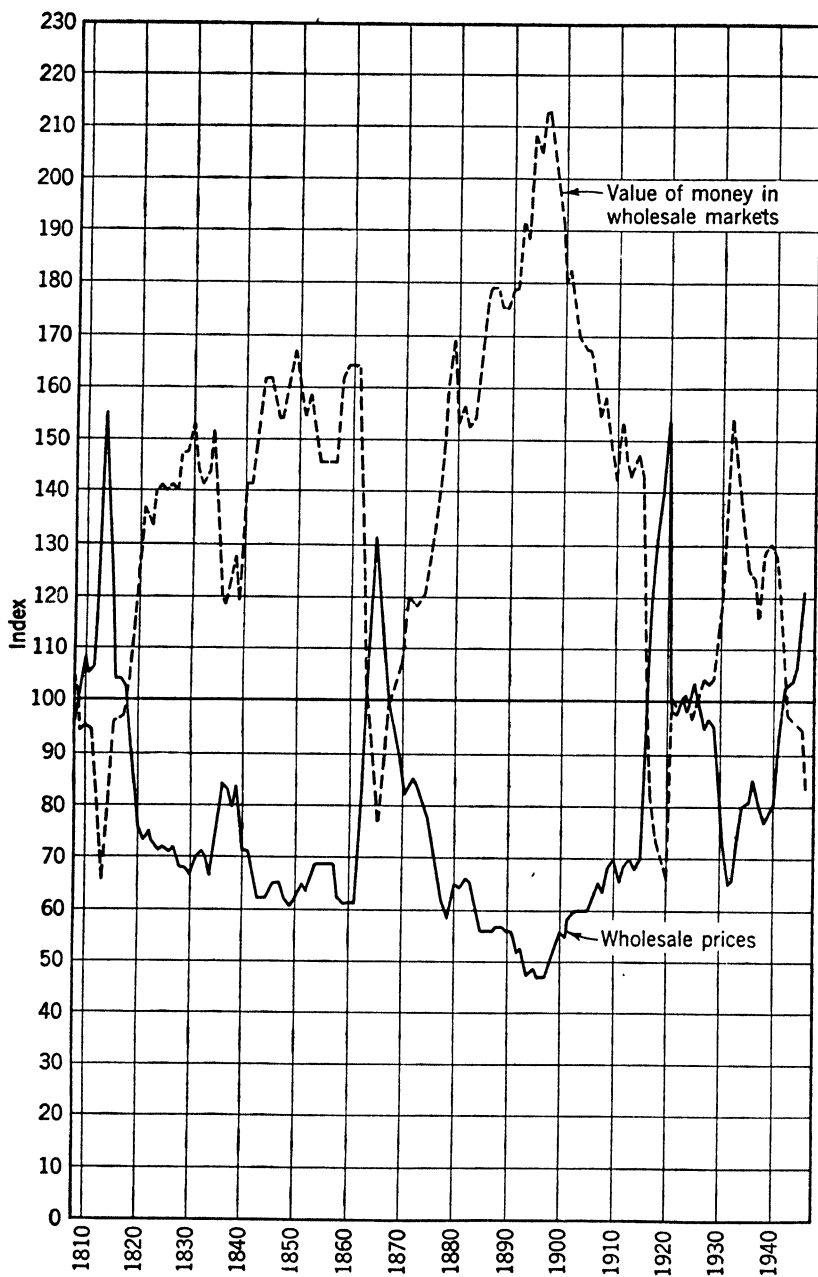


FIG. 1. *Wholesale Prices in the United States Since 1808.*

prices and of the cost of living would show less wide fluctuations, but even they would indicate a far from satisfactory performance. The broad swings of wholesale prices and of the purchasing power of the dollar in the wholesale market are summarized in Table 1. The greatest price increases occurred

TABLE 1. PRINCIPAL CHANGES OF WHOLESALE PRICE LEVELS IN THE UNITED STATES

Period	Percentage <i>Change of</i> Wholesale Prices	Percentage <i>Change</i> in Purchasing Power of Dollar in Wholesale Market
1808-1814	+65	-39
1814-1834	-56	+134
1834-1837	+26	-21
1837-1849	-28	+39
1849-1857	+15	-13
1857-1865	+91	-48
1865-1897	-64	+179
1897-1920	+228	-69
1920-1922	-37	+58
1922-1925	+7	-7
1925-1932	-37	+60
1932-March, 1947	+131	-57

during the War of 1812, the Civil War, World War I, and World War II, and the greatest decreases, in general, in the periods following these wars. But even if we admit that serious inflation must inevitably accompany every important war and be followed by drastic deflation—a proposition that few economists will accept—the behavior of the dollar in other periods has hardly been a cause for complacency. For example, its purchasing power for wholesale commodities declined by 21 per cent in the peacetime period of 1834 to 1837, rose 39 per cent from 1837 to 1849, declined 13 per cent from 1849 to 1857, rose 38 per cent from 1880 to 1897, declined 33 per cent from 1897 to 1913, and rose 52 per cent from 1926 to 1932. Such fluctuations could not fail to be accompanied by serious economic disturbances and arbitrary shifts of wealth and income from one group to another.

Fig. 2 shows the Bureau of Labor Statistics index of general wholesale prices as well as its wholesale indexes for some of

the most important subgroups of commodities since 1913. These indexes demonstrate not only the wide fluctuations of wholesale prices in general, but also the varying rates of change of the various classes of wholesale prices.

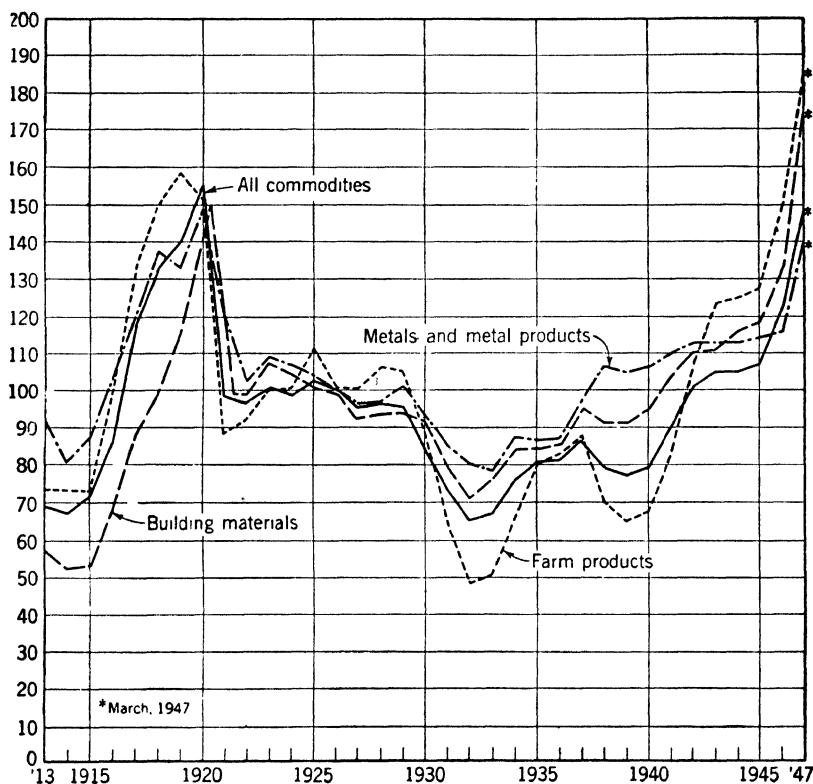


FIG. 2. *Wholesale Prices in the United States, 1913-1947.*
(1926 = 100.)

Though the cost of living, whose index since 1913 is shown in Fig. 3, has fluctuated less widely than wholesale prices, it has been far from stable. For example, the index shows that the cost of living rose 101 per cent from 1913 to 1920, declined 16 per cent from 1920 to 1922, rose 5 per cent from 1922 to 1926, declined 27 per cent from 1926 to 1933, and rose 60 per cent from 1933 to March, 1947.

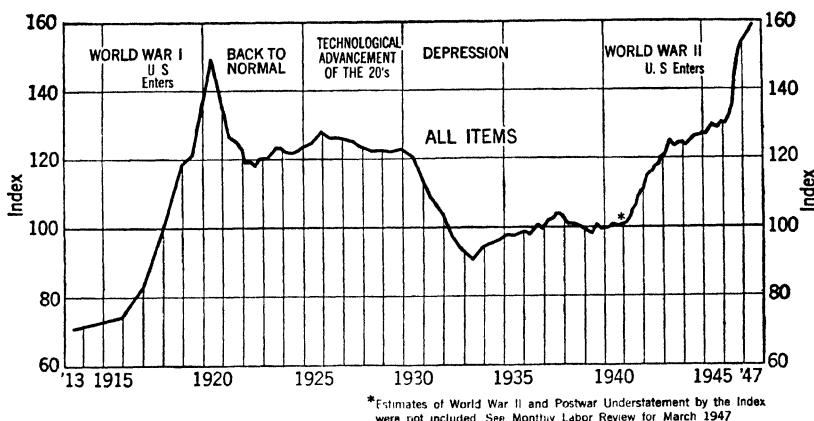


FIG. 3. *Consumers' Price Index for Moderate-Income Families in in Large Cities. (1935-39 = 100. From U. S. Department of Labor, Bureau of Labor Statistics.)*

DETERMINANTS OF PRICE LEVELS R

Why do price levels fluctuate? What factors determine the height of price levels anyway? Since these complex questions will be treated at length in later chapters, our answer here will be brief and necessarily incomplete. (In general, however, the height of price levels depends on the relation between the volume of money spendings and the physical volume of goods and services offered for sale in the market.) If money spendings are high relative to the quantity of goods and services offered for sale, price levels will be high. If money spendings are low relative to the quantity of goods and services offered for sale, price levels will be low. Both the volume of spendings and the quantities of goods and services are variables; it is the ratio between the two flows that is important in the determination of price levels.

The size of the flow of money spendings, in turn, depends on two immediate factors: (1) the size of the money supply (the amount of money available for spending), and (2) the rapidity or velocity of the circulation of money (the average number of times each monetary unit is spent during a period). The

volume of spendings during any period is the product of the quantity of money times the average number of times each unit of money is spent. We may say, therefore, that there are three immediate (not ultimate) determinants of price levels: (1) the size of the money supply, (2) the rapidity or velocity of the circulation of money, and (3) the quantity of goods and services offered for sale. Increases of the money supply and of its velocity of circulation tend to raise price levels, whereas an increase in the quantity of goods and services offered for sale tends to lower average prices. ✓

It is essential to note that changes in the volume of money spendings often have economic consequences which are only inadequately indicated by changes in price levels. Suppose, for example, that the volume of spendings increases, reflecting an increase in the money supply or the velocity of money, or both. This will show up in the various markets for goods and services as an increase in demand. If the various industries have excess capacity and many unemployed people are available for hiring, the producers' response to an increase in demand may be to raise prices only slightly and to increase their output. The initial rise in spendings may be largely absorbed in buying an increased flow of new goods and services. Increased spendings will be fully reflected in price rises only as full employment is approached, as production approaches capacity levels, and as producers are able to make further increases in their output only with great difficulty. Of course, increased spendings are likely to have their full effect on prices immediately if they occur at a time when productive resources are already near full utilization. Inflation due to increased expenditures was only a remote possibility in 1933 when thousands of plants were standing idle or working only part time and nearly 15,000,000 people were unemployed. It was a real and immediate threat in 1946 when further appreciable increases in physical production could be achieved only slowly and with great difficulty.

On the other hand, a decrease in the volume of spendings is likely to be evidenced not only in price declines but also in a reduced output of goods and services. Decreased spendings show up in the various markets as a decrease in demand. Some

producers, notably farmers, may produce as much as before, allowing the full effect of the decreased spendings to be reflected in prices. But the more common response in industry is to reduce both production and prices. In some case, especially where monopoly power is present in a significant degree, prices are held virtually constant, the full effect of the decrease in demand being reflected in depressed production and unemployment of labor and other productive facilities. It is for this reason that price declines measure only inadequately the deleterious effects of decreased or inadequate spendings.

CONSEQUENCES OF CHANGES IN PRICE LEVELS

The heading of this section may be misleading, for, like so many other treatments of the subject, it implies that changes in price levels are the "cause" of the disturbances that we shall study. This is true only in a superficial sense. The "causes" of these disturbances are the factors that change the volume of money spendings relative to the flow of goods and services, and that produce changes in the volume of production and employment as well as in price levels. It would therefore be more accurate to call this section "consequences accompanying changes in price levels." We may talk in terms of the "consequences of price level changes" only if we remember that the more basic causes of the disturbances are the factors behind price levels, and that prices are both a result of these underlying factors and the mechanism through which these factors transmit their disturbing influence to the various parts of the market.

We must recall here our earlier statement that changes in price levels are economically important largely because of the widely varying rates of change in the individual prices that make up the average. If every price, including the prices paid for productive factors, were in fact altered to the same extent, changes in the levels of prices would be of no consequence.

Output and Employment

In the preceding section we saw that changes in the volume of spendings are reflected in the various markets for goods and

services as changes in demand, and that increases or decreases in the money demand are likely to increase or decrease the volume of output and employment. This statement assumed that changes in the prices at which producers can sell their output will not be fully offset by corresponding changes in their cost schedules—by offsetting changes in the various prices that enter into costs, such as wage rates, interest rates, land rent, transportation rates, raw material prices, and so on. The amount of output and employment would not need to be changed if producers' cost schedules would immediately and fully adjust themselves to every increase or decrease in the prices at which output could be sold. But costs are notoriously "sticky"; wages, taxes, rents, and some other elements of cost tend to move more slowly than the demand schedules for output. The lag in cost schedules during periods of rising demand and rising prices encourages an expansion of output and employment. On the other hand, the lag in costs during periods of declining demand and prices brings about reduced employment and output. No monetary policy that ignores differences in the rates of change in prices and production costs can be successful in maintaining a high and stable level of employment.

The following discussion deals with shifts in the distribution of real wealth and income that accompany changes in the value of money. It is important to remember in this connection that not only the sharing of income, but also the amount of income (production) available for sharing, is affected by changes in price levels.

Price Levels and the Distribution of Income

Changes of price levels, and especially wide changes, are accompanied by large and arbitrary shifts in the distribution of the national income, for the money incomes of individuals respond in widely different ways. Some remain virtually constant in terms of money, others move but slowly, and still others move even more rapidly than the prices of things purchased with them. Those whose money incomes remain virtually constant or vary more slowly than the prices of

things purchased tend to lose when the purchasing power of money falls and to gain when the purchasing power of money rises. Those with highly volatile money incomes, on the other hand, tend to gain when the purchasing power of money falls and to lose when the purchasing power of money rises, for the amount of their money income changes more rapidly than the cost of living.

Among the most inflexible types of money income are pensions from government or private sources which remain fixed in amount or are altered only after long delays; interest on bonds, savings deposits, and other debts; annuities, which are usually fixed by contract for the life of the recipient; fixed incomes from lifetime trusts; and rents that are fixed by long-term contracts. People who must rely largely on these fixed types of income suffer when the cost of living rises. A doubling of the cost of living, such as occurred between 1914 and 1920, can cut their purchasing power by half, and inflation like that in Germany during and after World War I can practically wipe out their ability to buy. Many a German family with a fixed money income that was large enough to assure a high standard of living in 1914 found that the same number of marks would not purchase even one meal a week in 1923.

It is undoubtedly true that these groups with relatively fixed money incomes tend to receive a larger part of the national income in periods of falling prices and a smaller part of the national income during periods of rising prices. Yet some members of even these groups suffer during periods of falling prices which are also periods of decreasing production, national income, and employment, because their money incomes may be severely reduced or completely eliminated. For example, national income was reduced so drastically during the great depression following 1929 that hundreds of thousands of debtors—farmers, homeowners, municipalities, and corporations—could not even pay interest to their creditors, to say nothing of making payments on principal. The disappointed creditors got little satisfaction out of knowing that the interest due them would buy more if it were being received. On the other hand, a moderate rise in prices accompanied by a recovery of employment and production may actually benefit

certain of the so-called "fixed-income" groups by enabling them to get the promised income payments. It must be emphasized, however, that they will lose if the prices of the things they buy rise more than their money incomes.

Wage and salary rates have, in general, tended to lag behind changes in the cost of living, and hence the real purchasing power of each hour of work has tended to fall during periods of rising prices and to rise during periods of falling prices. Though true, this generalization should be accepted only with the following qualifications: (1) It may be less true in the future, owing to the rise of unionism, the workers' greater interest in real wages rather than money wages (at least during periods of rising prices), and other changes in the position of labor; (2) it relates to wage rates per hour rather than to the total annual take-home pay; and (3) as an average it does not bring out the widely differing behavior of the different types of wages and salaries. Some of these are much more inflexible than others.

Among the most inflexible wage and salary rates are those of municipal, state, and federal employees, schoolteachers, college professors, clerical workers, and salaried executives who do not participate significantly in bonus or profit-sharing plans. Their rates of pay usually increase only slowly and after a long delay during periods of rising prices, and they are likely to show a similar lag during periods of falling prices. These groups therefore tend to be injured by general price increases and to gain from general price decreases. The statement that this group tends to gain from falling prices is subject to qualifications, however. It is strictly true of those who keep their jobs on a full-time basis, who do not receive salary cuts proportional to the decline in the cost of living, and who are not deprived of promotion or advancement because of the depressed conditions associated with the price decline. Their purchasing power is indeed increased by falling prices. But others in this group are not so fortunate, if the decline of prices is accompanied by a general deterioration of economic conditions, for they may fail to get expected promotions, they may have only part-time employment, or they may become totally unemployed. These members may actually be bene-

fitted by a moderate rise in prices if it is accompanied by a substantial rise in employment and more favorable opportunities for advancement.

The wage and salary rates of other kinds of workers vary widely in behavior, many of them lagging behind changes in the cost of living and some of them moving at least as fast as the cost of living. The position of each kind of labor in periods of price change depends on the volatility of its wage or salary rates and the accompanying effect on opportunities for employment and advancement.

Most volatile of all types of income are the profits of business, whether of individual proprietorships, partnerships, or corporations. The owners of these enterprises accept the position of residual claimants. They enter into contracts to pay specified amounts of money as costs to workers, landlords, lenders, and other suppliers of goods and services with which to carry on production, hoping to receive enough money for their output to cover their costs and leave them a profit. In periods of rising prices, costs tend to lag behind sales receipts from output, so enterprisers' profits rise more than price levels. On the other hand, the lag of costs during periods of falling prices usually reduces owners' incomes faster than prices decline, so they receive a smaller part of the national income. Many owners of enterprises receive no income at all during such periods.

Many people believe that there are serious injustices in the distribution of the national income. But these are not likely to be remedied in any satisfactory way by the arbitrary and capricious shifts of income that accompany price level changes. For example, a decline of prices may indeed raise the purchasing power of hourly money wages, but it may also produce unemployment, increase the purchasing power of inactive millionaire lenders, and drastically reduce the real incomes of owners, including the struggling owners of small enterprises.

Price Levels and the Distribution of Wealth

Changing price levels can effect sweeping changes in the distribution of wealth among the various members of the com-

munity. These shifts are traceable to two principal facts: (1) Claims against real wealth are in general in the form of (a) debts which are fixed in terms of money, and (b) ownership claims, which are residual claims against the value of real wealth remaining after the settlement of creditors' claims. (2) The prices of some types of wealth vary more widely than others in periods of price change.

We have already seen that money is commonly used as the standard of deferred payments, the unit in terms of which debts are stated. The volume of these money debts is very large in modern society; at the end of 1945 debts in the United States amounted to more than \$400 billion.⁵ Every change in the value of money alters the real purchasing power of these debts. If prices rise between the time a debt is incurred and the time it is paid, the debtor gains and the creditor loses, for the debt is paid with dollars containing less purchasing power than those lent. But if prices fall between the time a debt is created and the time it is paid, the debtor is forced to return more purchasing power than he borrowed.

The above statements can be clarified by an example. Suppose that in a year when the price index is 100 Mr. B establishes a business requiring \$100,000 worth of property. He supplies \$50,000 himself and borrows the remaining \$50,000 from Mr. L on a ten-year note. During the ensuing ten years, however, the index of prices rises to 200 and the money value of the property to \$200,000. At the end of the period Mr. L is paid \$50,000 in retirement of the debt, but this sum will buy

⁵ Some of the most important of these debts at the end of 1945 were, according to the *World Almanac*, 1947 (p. 387):

	(Billions of Dollars)
Federal government debt	\$247
State and local government debt	14
Corporate bonded debt	39
Farm mortgages	5
Urban real estate mortgages	27
Short-term debts of non-financial enterprises	69
Total	\$401

only as much as \$25,000 would have bought at the time the loan was made. Mr. B, however, retains an equity in the property of \$150,000, which will purchase as much as \$75,000 would have purchased in the year the loan was made. In effect, the rise in prices transferred from the creditor to the debtor an amount of purchasing power equal to \$25,000 at the time the debt was incurred. But if prices had fallen by 50 per cent during the life of the loan, the shift of wealth would have been in the opposite direction. In this case Mr. L would have been repaid \$50,000, which would represent twice as much purchasing power as he lent. Mr. B would have suffered, of course, for the money value of the property would have fallen, perhaps to only \$50,000, thereby wiping out his entire original investment.

With these principles in mind it is easy to understand why creditors—holders of mortgages, corporation and government bonds, life insurance policies, savings deposits, and other obligations fixed in terms of money—should be so opposed to inflation. It is also not difficult to see why debtors—whether they are homeowners, farmers, other businessmen, or borrowers for consumption purposes—should find deflation so repugnant.

In periods of great inflation the purchasing power of bonds and other fixed debts may fall to almost nothing. Holders of mark bonds which had earlier represented a fortune were practically wiped out by the great German inflation during and following World War I. Corporations and other debtors, however, could sell a minute fraction of their assets and retire all their debts. At the end of our Revolutionary War observers reported that debtors were pursuing their creditors relentlessly and paying them off mercilessly with money that had lost most of its purchasing power.

Serious declines of price levels bring about injustices of the opposite sort. For example, the average prices of farm real estate fell more than 50 per cent from 1920 to 1933. Many farmers who bought \$20,000 farms in 1920, paying half the purchase price out of their own funds and borrowing the other half, found that the value of their land in 1933 was not even high enough to cover the mortgage. Their own investment had

been wiped out completely and they were still in debt. Owing to price declines, the quantity of farm products required to pay off the debt in 1933 was four times as large as in 1920 and twice as large as it would have been at any time between 1921 and 1929. In view of these facts one can understand why the farmers talked so much about "the burden of debt" during the great depression. Many urban borrowers on real estate were in similar positions; the fall of real estate prices greatly reduced or eliminated their equities. Stockholders, as the owners of corporations, in many cases found their equities seriously reduced or eliminated by the fall in the value of corporate assets, for bondholders had a prior claim.

We hear much about the burden of the federal debt, which amounted to more than \$255 billion in 1947. The interest on it will amount to approximately \$5 billion a year. The real burden of this debt for taxpayers (and its purchasing power for bondholders) will be greatly influenced by future movements of the value of money. If prices fall below the levels current at the time the loans were made, taxpayers will have to return to the bondholders more purchasing power than was lent. But if price levels rise the taxpayers will return to the creditors less purchasing power than was originally given for the bonds. The same principles apply to the interest on the debt. Even if this were the only debt outstanding, changes in price levels would still be capable of effecting a marked redistribution of purchasing power in this country.

SUMMARY

This and the preceding chapter have dealt with the functions of money. The fundamental purpose of money is to reduce the difficulties of exchange to a minimum, thereby facilitating specialization and orderly trade. Money is supposed to serve this broad purpose by acting as a measure of value, a medium of payments, a standard of deferred payments, and a store of value. It has rarely served these purposes in a wholly satisfactory manner; the flow of money spendings has behaved so inappropriately (owing to inappropriate changes in the

quantity of money, or in the rapidity of its circulation, or in both) relative to the flow of real goods and services as to produce fluctuations of employment and production, fluctuations of the value of money, and arbitrary and capricious redistributions of wealth and income among the members of the community. These are the types of evils that monetary management should avoid.

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Kinds of Money

THE PRECEDING CHAPTERS DISCUSSED THE FUNCTIONS OF money, the value of money, and the desirability of maintaining an appropriate flow of money spendings relative to the amount of trade to be transacted. (The purpose of this chapter is to consider the various kinds of money—the things used as media of payments.) The emphasis will be on modern monetary history; earlier experiences will be treated only briefly.

Anyone who begins his study of money with the belief that there is some one thing that “is by nature money” and that has been used as money at all times and in all places will find monetary history very disconcerting, for a most heterogeneous array of things have served as circulating media. An incomplete list of these is given in Table 2. Some of these are animal,

TABLE 2. AN INCOMPLETE LIST OF THINGS THAT HAVE SERVED AS MONEY

clay	goats	hoes	iron
cowry shells	slaves	pots	bronze
wampum	rice	boats	nickel
tortoise shells	tea	porcelain	paper
porpoise teeth	tobacco	stone	leather
whale teeth	pitch	iron	pasteboard
boar tusks	wool	copper	playing cards
woodpecker scalps	salt	brass	
cattle	corn	silver	debts of individuals
pigs	wine	gold	debts of banks
horses	beer	electrum	debts of governments
sheep	knives	lead	

some vegetable, and some mineral; and some, such as debts, defy this classification. Some are as valuable for non-monetary

purposes as they are in their use as money; others are practically worthless for purposes other than money; still others are valuable for non-monetary purposes, but not as valuable as in their monetary use. Some are quite durable, whereas others are much less so. About the only characteristic that all these articles have in common is the fact that each of them was able, at some time and place, to achieve general acceptability as a means of payment. And the reasons for their general acceptability certainly varied from place to place and from time to time.

The very heterogeneity in the forms of the various things that have served as money suggests, as was said earlier, that there is no one form of money that is best at all times, in all places, and under all physical and cultural conditions. Gold and silver may have served England well in the seventeenth century, but the Indians of the New World spurned them and used wampum. A native of Malaita would no more think of accepting a checking deposit as money than a New York broker would think of accepting porpoise teeth. What will serve best as money depends upon many things, such as the stage of economic development, the availability of the various things that may be used as money, the people's taste in ornaments, the nature of religious practices, the extent of literacy, the stage of development of financial institutions, the honesty and strength of the government, and past monetary experiences.

TYPES OF MONEY

Though the monetary systems of advanced countries during recent decades show wide variations, their circulating media have been mainly of the following types: (1) checking deposits, (2) paper money issued by governments, central banks, and privately owned banks, and (3) coins of various kinds. These are listed in the order of their present importance as means of payments. By far the largest part of our payments are made by transferring claims on banks from payers to payees, the bank debts being transferred by check. Next in

importance as an exchange medium is paper money, which is usually a debt of a government, a central bank, or a privately owned bank. Coin is the least important of all; it is, in effect, the small change of the economic system. We must emphasize that our circulating medium is made up largely of debts (or credits) which are transferred from payers to payees. We shall see later that this is largely true even of coins.

A classification of modern money that is more useful for analytical purposes is given in Table 3. It is based on the relationship between the value of money as money and the value of money as a commodity for non-monetary uses.

TABLE 3. CLASSIFICATIONS OF MONEY

- I. Full-bodied money
- II. Representative full-bodied money
- III. Credit money
 - A. Issued by government
 - 1. Token coins
 - 2. Representative token money
 - 3. Circulating promissory notes
 - B. Issued by banks
 - 1. Circulating promissory notes issued by central banks
 - 2. Circulating promissory notes issued by other banks
 - 3. Demand deposits subject to check

Full-Bodied Money

Full-bodied money is money whose value as a commodity for non-monetary purposes is as great as its value as money. It is versatile money; it can desert its monetary job and take up other occupations without losing value—if too much of it does not leave monetary uses. There have been many examples of this type of money. Most of the early commodity moneys—such as cattle, rice, wool, and boats—were as valuable for non-monetary purposes as they were in their monetary use. The principal full-bodied moneys appearing in modern monetary systems have been coins of the standard metal that are issued when a country is on a metallic standard—a gold standard, a silver standard, or a bimetallic standard using both gold and silver.

Full-bodied coins usually result when two conditions exist:

- (1) Money can be shifted from monetary to non-monetary

uses virtually without cost, and (2) the metal can be coined into money without limit and virtually without charge. The ability to shift coins from their monetary use without cost prevents them from being worth more as a commodity than as money; any tendency for them to be worth less as money than as an industrial material will cause gain-seeking persons to withdraw the coins from monetary circulation for industrial use. This movement will continue until the industrial material is no longer more valuable for non-monetary purposes than for use as money, or until the coins have all been drained from the monetary system. It is almost an axiom that a money cannot have a lower value as money than it has for non-monetary purposes; even the death penalty for melting down coins has usually proved incapable of preventing such actions when they were profitable.

On the other hand, when a metal may be coined into money without limit and virtually without charge it is impossible for the coins to have a higher value as money than as a material for other uses. Any tendency for their value as money to rise above their value as material for non-monetary purposes will elicit enough additional coinage to lower the value of the coin and/or to raise the value of the material for non-monetary uses so as to bring them into equality. For example, for many years before 1933, the federal government stood ready to coin gold in unlimited amounts and with only a negligible charge; it gave a dollar for each 23.22 grains of fine (pure) gold offered to it. This amounted to setting a purchase price of \$20.67 per ounce of fine gold, because an ounce of gold (480 grains) will yield 20.67 dollars of 23.22 grains each. The minimum price of gold in the market became \$20.67 per ounce, because as long as the government stood ready to buy all the gold offered at this price no one would sell for less, no matter whether the gold was to be coined or used in dentistry. In other words, the coinage of gold into money without limit as to quantity and virtually without cost prevented the gold dollar from being worth more as money than as a commodity for non-monetary use.

In summary, the equality of the monetary and non-monetary values of full-bodied money is usually maintained by

these two flows. The option of converting the money freely into a commodity for non-monetary use prevents the value of the money from falling below its value as a material for other uses. No one would pay more than \$20.67 an ounce for gold in the open market so long as he could melt down full-bodied gold coins. And the option of converting the material into money without limit and virtually without expense prevents the value of money from rising above the value of the material of which it is made.

Full-bodied money has in the past played an important role in the monetary system of the United States as well as in those of other countries. All coins issued by the federal government in the first few decades after the establishment of the mint were full bodied, and full-bodied gold coins were in circulation, though in decreasing quantities, until 1933. In that year, however, all gold was called in by the government and the coinage of gold was discontinued. No full-bodied money has circulated in the United States since 1933, and this type of money has for many years been a rarity in most other countries.

Despite the fact that full-bodied money has all but disappeared from modern monetary systems, many people still feel that it is superior to the "flimsier" types of money. They believe that it is "safer" because of its ability to shift without loss of value to non-monetary uses, such as jewelry, dentistry, gold plate, gold leaf, and so on. Most of these people seem to think that the value of a full-bodied coin merely reflects the value of the material in it for industrial and artistic purposes, and that the value of the metal is determined solely by its supply and by *its demand for non-monetary uses*. This is clearly an erroneous idea. The value of any metal both for industrial purposes and as a full-bodied coin depends on its supply and on the aggregate demand for it, and the aggregate demand is made up of two parts: (1) the demand for it for use as money, and (2) the demand for it in other uses, such as industry and art. As soon as a metal comes to be used as money, the monetary demand for it may easily become the larger part of the total demand, and the value of the metal may depend largely on the behavior of the monetary demand for it. This is es-

pecially true of gold. How much purchasing power would gold have if no important country would purchase any of the current output for monetary use, so that the only remaining demand was for non-monetary purposes? What would be the value of gold if all countries demonetized it and threw on the industrial market the hundreds of millions of ounces that they now hold in their monetary gold stocks? The value of gold would surely decline as the monetary demand for it disappeared. This is particularly likely in view of the fact that the non-monetary demand for gold is to such a large extent derived from its use for "conspicuous waste"—in jewelry, gold plate, and gold leaf. If gold lost its monetary use and depreciated seriously, people might well turn to other means of ostentation.

We are thus led to two important conclusions. The first is that though the value of a full-bodied coin as money is equal to its value as a commodity for non-monetary uses, the value as money does not merely reflect a value determined by the supply and the non-monetary demand. Instead, the value of the metal both as money and for other uses depends on the supply and on the aggregate demand for monetary and non-monetary uses, and the monetary demand is often dominant. The second conclusion is that though small amounts of full-bodied money may be able to shift to non-monetary uses without loss of value, this is not possible on any large scale. Mass attempts to convert full-bodied coins into bullion for other uses is likely to reduce the value of the metal.¹

This fact is clearly brought out by the history of silver. Before the last quarter of the nineteenth century many important countries stood ready to coin all the silver offered to them at a value equal to around $\frac{1}{15}$ or $\frac{1}{16}$ of the value of gold; hence the value of silver for both monetary and non-monetary uses was fixed at that level. But after these countries had withdrawn from silver the privilege of unlimited coinage, thereby decreasing its demand for monetary purposes, its value fell precipitately. In the nineteen-twenties its value averaged only about $\frac{1}{30}$ of the value of gold. There is

¹ For a delightful passage in which a piqued bank note "tells off" haughty gold coins, see D. H. Robertson, *Money*, Harcourt, Brace, New York, 1929, pp. 49-50.

no reason to believe that the value of gold would escape at least as great a decline if its monetary use were similarly curtailed.

Some people favor the exclusive use of full-bodied money because of its automatic limitation upon the quantity of money that can be created. Fearing that irresponsible monetary authorities would resort to inflation if token coins, paper money, or other debts were used as money, they would define the monetary unit in terms of a metal and then limit the money supply to the amount of the metal or metals offered for coinage. Though this technique might prevent the most extreme inflations, it does not at all assure appropriate behavior of the money supply or of the flow of money spendings. For example, new gold strikes or a decreased use of gold in industry can swell the money supply far beyond the amounts needed to carry on trade at stable prices, and the failure of gold production to rise sufficiently during periods of rapidly advancing production and trade can bring about a deficiency of money spendings, falling prices, and unemployment.

Another shortcoming of full-bodied money is its cost. To get the gold, silver, or other metal needed for full-bodied money, a nation must devote part of its productive power to mining and refining, or it must exchange part of its output of other goods and services for the metal of other nations. Credit money can be obtained more cheaply. Full-bodied money would probably be worth the extra cost, however, if in fact it performed monetary functions more satisfactorily than other types of money.

Representative Full-Bodied Money

Representative full-bodied money, which is usually made of paper, is in effect a circulating warehouse receipt for full-bodied coins or their equivalent in bullion. The representative full-bodied money itself has no significant value as a commodity, but it "represents" in circulation an amount of metal with a commodity value equal to the value of the money. Thus, the "gold certificates" which circulated in the United States before their recall from circulation in 1933 represented

fully equivalent amounts of gold coin or gold bullion which were held by the Treasury as "backing" for them.

In some respects representative full-bodied money is similar to full-bodied money. The amount of it that can be issued depends upon the quantity of full-bodied money or its bullion equivalent available as "backing," and the cost of the "backing" material is as great as that of full-bodied money. This type of money has certain advantages over full-bodied money. In the first place, its use obviates the expense of coining, though against this must be set the cost of providing and maintaining the pieces of representative paper. In the second place, it avoids ordinary abrasion as well as the deliberate sweating, clipping, and chipping to which circulating coins are sometimes subjected. In the third place, it is easier to transport than the full-bodied money that it represents. This was certainly true of the Swedish representative money which circulated in place of massive copper coins during the seventeenth and eighteenth centuries, of the warehouse receipts for tobacco which circulated in Virginia and some of the other colonies, and of the pre-1933 gold certificates. The principal disadvantages of this type of money as compared with full-bodied money are the ease of counterfeiting it if the representative paper money is not very distinctive, and its destructibility by fire.

Credit Money

All the money in circulation in the United States and almost all the circulating moneys in other countries are credit money. By credit money we mean any money, except representative full-bodied money, that circulates at a value greater than the commodity value of the material of which it is made. The principal modern types of credit money are *token coins*, *paper money*, and *checking deposits*. Each of these will be discussed in turn.

Token Coins. All circulating coins in the United States—silver dollars, half dollars, quarters, dimes, nickels, and pennies—are token money; their value as money is significantly greater than their value as materials in the commodity

market. The market values of the materials in these coins are shown in Table 4. Silver would have had an even lower value as bullion if it had been completely deprived of its monetary use.

Why are people willing to accept these coins in payment at values far above the values of the materials out of which they

TABLE 4. METALLIC CONTENT AND COMMODITY VALUES OF UNITED STATES COINS

Coin	Total Weight in Grains	Composition	Market Value of Commodity Con- tent of Coins at August, 1946, Prices (in cents)
Dollar	412.5	90% silver, 10% copper	70.0
Half dollar	192.9	"	32.8
Quarter	96.45	"	16.4
Dime	38.58	"	6.5
Nickel	77.16	75% copper, 25% nickel	0.2
Penny	48.00	95% copper, 5% tin and zinc	0.09

are made? The fundamental reason is that the quantity of these coins is deliberately limited by the government. We saw that the value of full-bodied money cannot rise above the value of the materials of which it is made because of unlimited coinage at virtually no cost to the suppliers of metal. But the government does not permit free and unlimited coinage in the case of token coins; if it did, the purchasing power of the coins would necessarily fall to the level of the commodity value of the materials in them—the coins would be full bodied. Instead, the government purchases the required metals at its own option and itself determines the quantities of token coins that it will issue. By appropriate limitations on the supply of these coins it can maintain their monetary value well above their commodity value. It can also make a profit equal to the difference between the cost of the material in the market and the value of the coins made from it. For example, it can pay \$90.50 for 100 ounces of silver

in the market and coin it into \$129, thereby making a \$38.50 gross profit. These profits are usually called *seigniorage*.

To insure that token coins will remain at parity with other types of money, the monetary authorities often provide for free conversion of token coins into other types of money on a dollar-for-dollar basis as well as for the free exchange of other types of money for token coins. They then limit their issues of token coins to the amounts that people want to use or hold on a parity basis. But though this free interchangeability of the various types of money is usually necessary to maintain these various types at strict parity with each other, it must be emphasized that the basic reason why token coins can circulate at a monetary value above the value of the materials of which they are made is the limitation of their issue.

The above arrangement under which the government issues token coins made of metal purchased at its own option and in quantities determined by itself is the one ordinarily used today. But there have been token money systems in which governments coined all the metal offered to them, but only at a very high cost to the suppliers of it, the governments retaining the high margin as seigniorage. For example, suppose that the monetary unit of a country is the dinar and that a 1-dinar piece contains 100 grains of silver. The government might stand ready to coin all the silver offered to it, but to give only 1 dinar for each 200 grains of silver. The market price of silver could fall as low as 1 dinar for 200 grains of silver, the government purchase price. The 100 grains of silver in the dinar could be worth as little as half a dinar in the commodity market. This underlines the fact that unlimited coinage or purchase of a metal is not sufficient to make a coin full bodied; the coinage must also be virtually without cost to the supplier of the metal. The market value of the material in a coin can fall below the monetary value of the coin by the amount of any charge made for coinage.

Representative Token Money. Representative token money, which is usually paper, is in effect a circulating warehouse receipt for token coins or for an equal weight of bullion that has been deposited with the government. It is like representative full-bodied money, except that the coins or bullion held

as "backing" is worth less as a commodity than as money. Silver certificates are the only example of this type of money in the United States. These have been in circulation in varying amounts since 1878 and are "backed" by an equivalent number of silver dollars or by silver bullion of equivalent weight. Most of our \$1 bills are silver certificates, as are some of our \$2, \$5, and \$10 bills. Most economists see no advantage in having a paper money "backed" by silver with a commodity value far below its monetary value. They believe that the money function could be served fully as well by an equivalent amount of paper currency without specific backing. But silver producers, constantly on the alert for better markets for their product, take a different view.

Circulating Promissory Notes Issued by Governments. Governments also issue credit money in a form usually, but sometimes inaccurately, called circulating promissory notes. These are usually made of paper and are sometimes called *fiat* money. Some of them carry the government's promise to redeem them in other types of money on demand; this is why this type of money is usually called circulating promissory notes. Others, however, lack this promise and in effect say, "This is a certain number of monetary units."

The only circulating promissory notes issued by the United States government and still in circulation are the United States notes, or "greenbacks," which were issued to assist in financing the Civil War. Over \$400 million of them were originally issued, but they were reduced to \$347 million by 1878 and have since remained at approximately that level.²

Many people oppose the use of government paper money, fearing that it will be issued in excessive amounts. Monetary history provides a real basis for this fear, because these issues provide an attractive source of revenue to governments. By spending a small amount for paper, engraving, and printing, a government can produce millions of dollars' worth of paper money, which can then be used to pay its debts or to meet its expenses. The temptation to sacrifice proper monetary

² The Treasury statements also list as outstanding \$1 million of Treasury notes of 1890. Though these are government promissory notes, most of them are believed to have been destroyed, lost, or placed in collectors' boxes.

management in order to meet budgetary deficits is often strong. It should be pointed out, however, that most of the excessive issues of paper money have occurred during war periods when nations felt that their very existence was at stake and when they were in dire need of more money to meet military needs. There is no reason why a properly managed government paper money should not function well. In fact, serious overissues of paper money by governments in times of peace are almost a rarity.

Circulating Promissory Notes Issued by Central Banks. A considerable part of the hand-to-hand currency used in most advanced countries is in the form of circulating promissory notes issued by central banks, such as our Federal Reserve banks, the Bank of England, and the Bank of France. The largest part of our paper money is made up of Federal Reserve notes, which are circulating evidences of debt issued by the twelve Federal Reserve banks. In some cases the paper money issued by central banks is redeemable in other types of money; in other cases it is irredeemable. Though the Federal Reserve banks will redeem their notes in token coins or other types of paper money they are not obligated to redeem them in full-bodied money.

Circulating Promissory Notes Issued by Private Banks. Circulating promissory notes issued by privately owned banks have played an important role in monetary systems. Promissory notes issued by state-chartered banks and by the First and Second Banks of the United States provided a large part of the circulating medium in this country before the Civil War, and the national banks chartered by the federal government issued such notes from the Civil War until 1935, when their power of note issue was rescinded. Though most of the notes issued by privately owned banks have been retired in this country, they are still used extensively in some other areas. These notes, it must be emphasized, are only circulating evidences of bank debts—creditor claims against banks.

Checking Deposits at Banks. The major part of the money supply in this country, as well as in most other advanced countries, is in the form of demand deposits at banks. These so-called "deposits" are merely bank debts payable on de-

mand—claims of creditors against a bank which can be transferred from one person or firm to another by means of checks or other orders to pay. These claims against banks are generally acceptable in payment of debts and for goods and services. They are used almost exclusively in transactions involving large payments and very widely in small payments, such as those from customers to retailers and salaries and wages to employees.

The popularity of checking deposits can be traced to their advantages: (1) They are not so liable to loss or theft as other types of money. (2) They can be transported very cheaply no matter how large the amount of the payment or how great the distance from payer to payee. (3) Checks can be written for the exact amount of the payment, thereby obviating the necessity of making change and counting bills and coins. (4) When endorsed by the payee, checks serve as a convenient receipt for payment. The principal disadvantage of checking deposits is that checks drawn on them may not be accepted from an unknown person, but this is largely remedied by such devices as certified checks, cashier's checks, and traveler's checks.

THE MONEY SUPPLY OF THE UNITED STATES .

Table 5 shows the composition of the circulating medium in the United States as of a recent date.³

A study of this table brings out several important facts about our monetary system. (1) The entire monetary supply is in the form of credit money. We have no full-bodied money in actual circulation, and the \$50 millions of representative full-bodied money (gold certificates) listed in the table has either been destroyed or is in private hoards, for it may not legally circulate. (2) Coins are indeed the small change of the monetary system, making up only 1.2 per cent of the total money supply. (3) The government itself issues only a small part of our money (less than 4 per cent). Its influence over the money supply is far greater than this figure would indi-

³ For current data, see *Federal Reserve Bulletins*.

cate, however, for it has regulatory and control powers over the other issuers of money. (4) The Federal Reserve banks issue most of our paper money. (5) By far the larger part of our money supply (nearly three-fourths) is in the form of demand deposits owed by banks. (6) The Federal Reserve

TABLE 5. KINDS OF MONEY IN CIRCULATION IN THE UNITED STATES,
MAY 31, 1946⁴
(In millions of dollars)

	Amount	Per Cent of Total
Full-bodied money	none	0.0
Representative full-bodied money (gold certificates)	\$ 50	0.1
Credit money issued by the government		
Token coins	1,291	1.2
Representative token money (silver certificates)	2,019	1.9
Circulating promissory notes (U. S. notes)	317	0.3
Credit money issued by Federal Reserve banks		
Circulating promissory notes (Federal Reserve notes and Federal Reserve bank notes)	24,329	22.8
Credit money issued by other banks		
Circulating promissory notes (national bank notes)	114	0.1
Demand deposits subject to check	78,500	73.6
Total money supply	\$106,620	100.0

banks and the checking deposit banks between them supply us with about 96 per cent of our money. This fact explains why it is impossible to discuss money and banking separately; central banks and checking deposit banks provide most of our money, account for most of the fluctuations of the money supply, and greatly influence the flow of money spendings, price levels, and the volume of actual employment and production.

All types of circulating money in this country except checking deposits have full legal-tender powers. That is, they have the legal power to discharge debts; creditors may not insist on payment in any other type of money if the debt is stated

⁴ See *Federal Reserve Bulletin*, July, 1946, pp. 769, 771.

The figures for coins and paper money show amounts outside the Treasury and the Federal Reserve banks. They therefore overstate the amounts in actual circulation by the quantities in commercial banks and other countries.

in dollars. Though checking deposits are not themselves legal tender, the banks are obligated to redeem them on demand in legal-tender money. This lack of the legal-tender power reduces the general acceptability of bank deposits only in periods when confidence in the banks' ability to redeem their debts is in doubt.

THE GENERAL ACCEPTABILITY OF MONEY

Though many countries, including the United States, have long used credit money and this credit money has often not been redeemable in gold, silver, or any other money with a substantial non-monetary value, the feeling still persists in some quarters that pieces of money cannot be "good" or even generally acceptable unless they themselves have an equivalent value for non-monetary purposes or are kept redeemable in other types of money which have an equivalent value for non-monetary uses. At the risk of excessive repetition we must point out again that this view is erroneous. That token coins, paper money, and other circulating debts can be over-issued—and on too many occasions have been—is undeniable. But if their issue is properly limited they can be given a scarcity value and can circulate at least as satisfactorily as any full-bodied money; in fact, with proper management their quantities can be adjusted to the needs of trade better than can the quantities of a gold or silver full-bodied money whose supply often reflects the capriciousness of gold or silver mining.

Money can have a value simply because it is limited in supply and is demanded for use as money. Barter, as we have seen, is inconvenient. To escape these inconveniences, people want some kind of "tokens" or "tickets" that can be used as means of payment. In determining whether or not to accept such tickets in payment of debt or for goods and services, each person is interested in only one question: "Can I pass them along to someone else in exchange and without loss of value for the things I want to buy?" He is interested in their acceptability as money, not in their usability for some other

purpose. If their quantity is sufficiently restricted, pieces of paper, bits of clay, or many other things may become generally acceptable.

Such things may come into general monetary use in a group which has had no previous monetary experience. Let us imagine, for example, the Zanzabu tribe, whose chief is Fungo II. The members of the tribe have been trading among themselves, but only by means of crude barter. By democratic processes or by edict of the chief they establish a monetary system, using the pecunio as their monetary unit. The physical things used as money may be baked pieces of clay bearing the seal or other distinguishing mark of Fungo II and the notation "1 pecunio," "5 pecunios," or "10 pecunios." To assure limitation of "coinage" and to prevent the chief from converting the system to his own uses, a committee of elder statesmen may be appointed to supervise the "mint." Though they have no use for other purposes, these imprinted pieces of clay may be readily accepted in trade by the tribal members who are happy to escape the clumsiness of barter. The acceptability of pecunios may be expedited somewhat by an edict declaring them to be acceptable in payment of taxes, or declaring them to be legal tender in payment of debts, or giving them both powers. No trouble need arise if the tokens are issued in proper amounts. After a while, however, Fungo II or the tradesmen may decide that the monetary system is inefficient; one or more of the able-bodied members of the tribe must spend their time imprinting and baking the pieces of clay, and the tokens are liable to theft and are heavy to transport in quantities. They may therefore decide that they will supplement the "coin" system with book credits. The tribal treasurer, or perhaps a reputable tradesman, will set up pecunio credits on his books, and these credits can be transferred by written order from one tribesman to another in payment. At first the tribesmen who receive claims against the treasurer or tradesman may demand that they be redeemed in "coin." Later, however, after they have become accustomed to the system they may make virtually all their payments by transferring book credits from payers to payees, using coins only in small transactions.

Though modern credit money systems could have arisen in the manner indicated above, they are actually the result of a long evolution which is still in process. "The longer history of money has shown an almost unbroken evolution from commonplace, concrete, and simple forms to the representative, incorporeal and abstract."⁵ The general nature of this evolution was somewhat as follows. Let us start with the use of uncoined metals, such as copper, gold, and silver, as circulating media. These metals probably came to be widely acceptable in payment because they were widely desired for ornamental and religious purposes, they did not deteriorate, they were relatively easy to transport, and so on. At this stage money was not differentiated at all from the material of which it was made; the metal flowed freely into and out of monetary uses. The use of bullion as money had serious disadvantages, however. Precision weighing apparatus was not widely available and assaying was both laborious and inaccurate. Coinage solved, at least in part, both of these problems. At first, coinage amounted merely to an official certification as to the purity and weight of the lump of metal. The imprint of the king's stamp meant in effect, "I hereby certify that this contains a certain weight of metal of a certain purity." The names of many monetary units—pounds, livres, lire, and shekels—which were originally units of weight attest to this fact.

Coinage was an important monetary innovation. In the first place, it greatly expanded the use of metallic substances as money. More important, however, it was a long step toward the differentiation of money from its component material. Not metal but *coined metal* became money. People gradually ceased to think in terms of the *weights* of metal; they thought in terms of the *number* of coins—not the weight of silver in a payment, but the number of shekels or lire. Debts and other contracts came to be stated in monetary units. This habit often persisted after the pure metallic content of the coins was reduced through abrasion, clipping, chipping, sweating, or deliberate action of the sovereign. When coinage was

⁵ F. D. Graham and C. R. Whittlesey, *Golden Avalanche*, Princeton University Press, Princeton, 1939, p. 215.

limited, the value of the coins as money often rose above the commodity value of their reduced metallic content; token coins appeared. Token coins also came into circulation at times as tokens redeemable in full-bodied money. After the group had become accustomed to using these tokens they continued to be acceptable whether or not they were redeemable in other money.

The use of representative paper money probably arose out of governments' desires to save the costs of coinage and of keeping coins in good condition as well as from the greater ease of transporting pieces of paper. The pieces of paper may have been acceptable at first largely because of confidence that they were fully "backed" and that they would be redeemed in full-bodied money on demand. But after attaining general acceptability they could retain their monetary use even though the right of redeemability was withdrawn. The same is true of circulating promissory notes, whether issued by a government or by a reputable bank or merchant. At first their acceptability probably rested largely on confidence that the issuer would pay them on demand in other types of money. Then they continued to circulate after the promise to pay other types of money was rescinded and the pieces of paper bore only the legend "This is X dollars." We shall see later that the use of checking deposits evolved in this same general way. At first people may have been willing to accept and hold claims against banks only because they believed that their claims were fully "backed" by full-bodied money. But after the practice of accepting and holding claims against banks became solidly established, people continued to be willing to accept and hold these claims despite the knowledge that the banks held only very small amounts of coin and paper money.

At the present stage of monetary evolution there can be no doubt that people in the principal nations of the world are fully accustomed to the use of credit money and that by far the larger part of their payments is made by the transfer of bank deposits and paper money. Coins are typically the "small change" of economic systems, and full-bodied money has all but disappeared from general circulation.

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Monetary Standards: General Principles

THE PRECEDING CHAPTER DESCRIBED THE VARIOUS KINDS OF money that serve as actual circulating media. The purpose of this chapter is to investigate *monetary standards* and to explore the relationships between *standard money* and the various other types of money in the system. This is a highly controversial field. What kind of monetary standard should a country have—gold, silver, bimetallic, or inconvertible paper? Almost every country has debated this question at least once, and the United States has debated it bitterly several times. Early in the nineteenth century the issue was whether the standard should be gold or silver, or both gold and silver. Later, after the monometallic silver standard had lost some of its prestige, the debate was between the advocates of gold and of bimetallic standards. Gold won this contest and was virtually undisputed as the international monetary standard from the late nineteenth century until World War I. Almost every nation abandoned gold during that war and entered the postwar period with inconvertible paper standards. Since 1918 the controversies over monetary standards have been many-faceted and almost continuous. Is some form of the gold standard superior to a managed inconvertible paper standard? If gold is used as a standard, what should its form be? What should be the gold value of the monetary unit? Should the standard be largely automatic or deliberately managed? Who

should manage it? These are but a few of the burning issues.

To attempt precise definitions of the terms used in these controversies would be misleading. We can properly say that standard money is the basic monetary unit in terms of which the unit of value is stated and to which the values of other kinds of money in the system are equated. Thus, if the unit of value (the dollar) is defined as a fixed amount of gold or otherwise kept constant in terms of gold, the gold monetary unit is the standard money of the system. Monetary standards take their names from the type of standard money employed. If its standard money is gold, we say that a country is on a gold standard. If the standard money is silver, the country is on a silver standard. If the standard money is defined in terms of both gold and silver, the country is on a bimetallic standard. If the standard money is not kept constant in terms of any metal, the country is usually said to be on an inconvertible paper money standard. But it is essential to remember that these broad terms are in the nature of general descriptions rather than precise definitions; they are the names of general categories, each of which includes a large number of individual cases differing widely as to both form and functioning. For example, it is almost meaningless to speak of *the* gold standard; there have been whole families of gold standards, many of whose members bear only faint family resemblances to the others. The following discussion will attempt to outline the most important points of similarity and dissimilarity in the various systems.

GOLD STANDARDS

The distinguishing characteristic of a gold standard is, as we have seen, that the basic monetary unit (the dollar, franc, or pound) is in some sense kept at a constant value in terms of gold. Beyond this general characteristic, gold standards have displayed wide differences in both form and functioning. In the following sections we shall classify gold standards on three bases: (1) On the basis of the form of gold in which the circulating moneys of a nation are redeemable. On this basis there

are gold-coin, gold-bullion, and gold-exchange standards. (2) On the basis of the degree of deliberate monetary management employed. We shall find that gold standards range all the way from those that are largely automatic to those that are highly managed by central banks and other governmental agencies. (3) On the basis of the extent of their geographic coverage. During some periods virtually all the important countries maintained gold standards; at other times only one or a few countries have been on gold. We must again emphasize, however, that even these various classifications fail to indicate the variety of monetary arrangements that have existed under "gold standards."

Gold-Coin Standards

Gold-coin standards are often called the "old type of gold standard," because most of the early gold standard systems were of this sort. They are also called "the gold circulation system," for gold coins were freely issued and actually available for circulation. The distinguishing characteristic of this type of system is that the monetary unit is defined in terms of gold, full-bodied gold coins are issued, and all kinds of money are kept at parity in terms of gold and gold coins.

To maintain the monetary unit and all other types of money constant in terms of gold, the following things must, in effect, be done:

1. Define the gold value of the monetary unit.
2. Provide for the unlimited coinage of gold at virtually no cost to the suppliers of the metal.
3. Permit the free and unlimited melting of gold coin.
4. Provide for the free interconvertibility of gold money and all other types of money at parity.
5. Allow free import and free export of gold.¹

The purpose of each of these steps should be noted carefully. The first step is to define the gold value of the monetary

¹ Some writers list a sixth requirement—that gold be given unlimited legal-tender powers. Though this provision is found in most gold standard systems, it is easy to see how gold may become generally acceptable in payment of debts because of convenience and custom rather than legal compulsion.

unit. For example, for some years prior to 1933 our dollar was defined as 23.22 grains of fine gold.² The provision for unlimited coinage of gold at virtually no cost to the supplier is necessary to prevent the value of the dollar from rising above the value of gold as a commodity—to prevent the price of gold from falling. For example, when our government would coin gold in unlimited amounts at the rate of one dollar for 23.22 grains, the market price of gold could not fall below that level; the minimum price of gold in the market became \$20.67 per fine ounce. One ounce—480 grains—would coin 20.67 dollars of 23.22 grains each.³ The third step—the free and unlimited melting of gold coins—is necessary to prevent the value of dollars from depreciating in terms of gold, that is, to prevent the market price of gold from rising above the mint price. Under a gold-coin standard, gold money is freely available for conversion to any other use—hoarding, industrial purposes, export, and so on. If gold coins cannot be so converted or if they are no longer available for conversion, the value of gold in the market can rise relative to the value of money.

It will be noted that the combined effect of the first three steps is to fix the value of the monetary unit in terms of gold. For example, the free and unlimited coinage provision prevented the gold dollar from rising in terms of gold (prevented the price of gold from falling), and the provision for unlimited melting of gold coins prevented the dollar from depreciating in terms of gold as long as coins were available for melting (prevented the price of gold from rising).

The purpose of the fourth provision—the free interconvertibility of gold money and all other types of money on a dollar-for-dollar basis—is to equalize the values of all types of money in terms of each other. It should be emphasized that the use of a gold-coin standard does not mean that gold coin is the only circulating medium. In some cases gold coin did make up a significant part of the means of payments, but more often and especially in the later years the great bulk of

² Actually it was defined as 25.8 grains of gold $\frac{9}{10}$ fine and $\frac{1}{10}$ alloy, but the value of the alloy was negligible.

³ See the discussion of full-bodied money on pp. 42-46.

the circulating medium was in the form of token coins, circulating promissory notes, and checking deposits. For example, at the end of 1930 when this country was on a full gold-coin standard and people were free to demand gold coin for circulation, hoarding, or any other purpose, our circulating money was made up as follows:

		Per Cent of Total
Gold coin	\$ 81,000,000	0.3
Other coin and paper money	3,524,000,000	14.3
Checking deposits	20,967,000,000	85.4
Total circulating media	\$24,572,000,000	100.0

To insure that other types of coin and its own issues of paper money would not depreciate in terms of gold, the government usually stood ready to convert them into gold or gold money on a dollar-for-dollar basis. Though the government did not itself provide convertibility of bank notes and checking deposits into gold or gold money, the banks usually were ready to redeem these claims against them in either gold money or other government money which was freely convertible into gold. When these other types of money could not be freely converted into gold money, they sometimes depreciated in terms of it. On the other hand, any refusal to convert gold money into other types of money made it possible for the latter to appreciate in terms of gold.

The purpose of the fifth provision—allowance of free import and free export of gold—is to equalize the price of gold within the country with the price of gold abroad. If the free import of gold were not allowed, the price of gold within the country could rise in terms of foreign gold. If free gold exports were not allowed, the price of gold in the country could fall below that abroad; the value of the dollar could decline in terms of foreign gold.

~ These are the general outlines of gold-coin standards. Some of the principal characteristics of this type of standard should be noted. The first is that some part of the circulating medium was actually made up of full-bodied gold coins. Though in most cases, and especially after the middle of the nineteenth

century, these made up only a small part of the total money supply, people did have the option of using gold coins if they wished to do so. In the second place, people could secure and use gold for any purpose—for circulation, industrial uses, hoarding, or export. And in the third place, the amount of other types of money—token coins, paper money, and checking deposits—which were supposed to be kept freely convertible into gold was several times as great as the country's monetary gold stocks. This is shown by Table 6. During these

TABLE 6. THE MONETARY GOLD STOCK AND THE CIRCULATING MEDIA OF THE UNITED STATES, 1925-1932

End of Year	Monetary Gold Stock (In millions of dollars)	Circulating Media (In millions of dollars)	Monetary Gold Stock as Percentage of Total Circulating Media
1925	\$4110	\$26,059	15.8
1926	4194	25,548	16.4
1927	4129	26,430	15.6
1928	3855	26,674	14.4
1929	4037	26,366	15.3
1930	4296	24,572	17.5
1931	4163	21,882	19.0
1932	4142	20,397	20.3

last years of the gold-coin standard in this country, our total circulating media were from 5 to 7 times as great as our monetary gold stock. The promises to keep all moneys redeemable in gold could therefore be kept only as long as there was no widespread demand for redemption. In time of crisis they had to be abrogated.

✓ Perhaps it is worth noting again that stabilization of a monetary unit in terms of gold does not assure stabilization of its purchasing power for other goods and services. It merely assures that the purchasing power of gold bullion and the purchasing power of the monetary unit will fluctuate together.

Gold-Bullion Standards

Gold-coin standards all but disappeared after World War I. The United States was the only major country that maintained a gold-coin standard in the nineteen-twenties, and it

shifted to a type of gold-bullion standard in 1934. Let us look first at what may be called a "full gold-bullion standard."

✓ The principal differences between this and a gold-coin standard are the following: (1) The coinage of gold is discontinued and gold coins no longer circulate. Gold is still purchased by the government or central bank in unlimited amounts and at a fixed price, thereby preventing the monetary unit from appreciating in terms of gold; but it is held in government or central bank vaults and payment to the sellers of gold is made in other types of money, such as government or central bank notes, deposit credits at the central bank, or deposits at other banks. (2) Other types of money are no longer convertible into gold or gold coin at the option of their holders in any amount requested; gold is sold for money only in the form of bars of a certain minimum weight. For example, the smallest bar that could be bought from the government under Great Britain's gold-bullion standard of the nineteen-twenties was worth about \$7585. French peasants bitterly christened their own gold standard of this type "the rich man's standard." These gold bars were usually sold freely, however, whether they were to be used for hoarding, industry, or export. Their full availability for export prevented the country's money from depreciating abroad.

These gold-bullion standards were usually adopted to "economize" gold. The countries wanted some sort of gold standard, but feared that the circulation of gold coins or the free redeemability of money in gold would lead to such a drain of the metal from the government as to endanger its ability to provide gold for foreign payments, or would reduce its reserves so seriously as to force undesired reductions in the total money supply. ✓ They contended that in normal times there was no need for gold in circulation and that in time of crisis all the money could not be converted into gold anyhow; to permit free convertibility of money into gold in time of crisis was merely to reward the hoarders or speculators who first started the "run" and to drain the government of gold needed for foreign payments or as a reserve base for other types of money. The sale of large gold bars was defended as necessary to supply gold for industrial purposes and foreign payments.

Even the "full gold-bullion standards" embodied marked changes from the old gold-coin standards. The circulation no longer included gold coins; the nearest that gold came into circulation was as "backing," often in a vague sense, for money. Other moneys were convertible into gold no longer in small amounts, but only in large amounts; and even in these cases the gold received was not in the form of money. But perhaps most important of all, the concentration of gold in the hands of central banks and governments, together with the reduced responsibility for redeeming other types of money in gold, gave monetary authorities much more leeway in monetary management. The gold holdings of the monetary authorities were increased, the discontinuance of coinage and the limitations on the minimum amount of gold that would be sold reduced somewhat the danger of gold withdrawals, and the need for gold relative to the total money supply was decreased.

From the "full gold-bullion standards" discussed above, it was only a short step to what we may call "qualified gold-bullion standards." Under the arrangements already described, the monetary authorities sold the large gold bars freely for all purposes. But this often led to unwanted results. Speculators would buy gold for hoarding at home or abroad or for sale abroad, hoping for speculative profits in foreign-exchange operations. This resulted in the undesired draining of gold from government and central bank reserves. To prevent these practices, the monetary authorities adopted a policy of selling gold only for "legitimate" industrial and export purposes, and the tests of "legitimacy" were often very strict. This procedure, by which a nation redeems its money in gold for only what it considers to be "legitimate" purposes, is indeed a far cry from the unlimited gold-coin standards.

Gold-Exchange Standards

'The identifying characteristic of the gold-exchange type of standard is the fact that the country's monetary unit is fixed not directly in terms of gold, but in terms of some foreign currency which in turn is fixed in gold. For example, the mone-

tary unit of the Philippines was for a long time the peso, and the circulating medium was composed largely of silver coins, paper money, and checking deposits; few if any gold coins were in circulation. The government did not undertake to keep the peso constant in direct relation to gold, but it did for some time stabilize it at a value of half a United States dollar, which at that time had a gold value of 23.22 grains. It achieved this stabilization by giving dollars for pesos whenever the peso tended to depreciate in terms of dollars, and by giving pesos for dollars whenever the peso tended to rise in terms of dollars.

Automatic and Managed Gold Standards

The classification of gold standards used above was based on the form of gold into which money is kept redeemable. Thus, money is redeemable in gold coin under the standard of that name, in bullion under the standard of that name, and in a foreign money under the gold-exchange standard. But gold standards also vary greatly as to the degree in which they are subjected to deliberate management. Thus, they are sometimes classified as *automatic* or *managed* gold standards. These names can be seriously misleading. Almost no gold standard has ever been fully automatic and without any degree of deliberate management, and almost no managed gold standard has been without some automatic aspects. The difference is one of degree rather than of kind. The importance of these differences in degree can best be shown by outlining the theory of an automatic gold standard and then analyzing the effects of introducing management.

The theory of automatic gold standards may be outlined as follows. The monetary authority must define the monetary unit in terms of gold and provide for the unlimited purchase and sale of gold at a fixed price, as well as for the free interconvertibility of gold and all other types of money on a parity basis. The quantity of money is then left to the determination of the gold flow into and out of the monetary system. The process can be understood most easily if we assume a system in which the entire money supply is made up of gold coins and gold certificates. In this case the total money supply would be

equal to the stock of monetary gold, and it would increase and decrease by amounts equivalent to the flow of gold into and out of monetary use. Actually, of course, the circulating medium has rarely been exclusively or even principally composed of gold coin and gold certificates; most of it has been in the form of paper money and checking deposits. This need not, however, prevent fluctuations of monetary gold stocks from determining the supply of money. The quantity of money could be kept at a constant ratio to the gold supply. For example, checking deposits might be limited to ten times the amount of gold held as reserves. A flow of gold into the monetary system would then automatically expand bank reserves and tend to induce a proportional expansion of checking deposits, and an outflow of gold would automatically reduce bank reserves and tend to force a proportional decrease of checking deposits. In such cases fluctuations in the supply of monetary gold would not induce *equivalent* changes in the total money supply, but would tend to bring about *proportional* changes in it.

Though this description is admittedly an oversimplification, it does bring out the principal attribute of a fully automatic gold standard; the flow of gold into and out of a monetary system will automatically induce changes in the total money supply by increasing and decreasing the size of the basic gold reserves.

By introducing deliberate management, treasuries, central banks, and other monetary authorities can greatly alter the effects of gold flows on the total supply of money. Their instruments of control will be examined in detail later. It is sufficient here to note that they can lock up incoming gold without allowing its effect to be felt by the monetary system, that they can release gold that had previously been rendered ineffective, that the Treasury can increase or decrease its issues of token coins and paper money to offset changes in gold stocks, that central banks can increase or decrease their circulating note issues and the reserves of other banks, and that the ratio of bank reserves to checking deposits can be changed. By these and other methods the monetary authorities may accentuate the effects of the flow of gold, offset

its effects in whole or in part, or cause the total money supply to vary inversely with the size of monetary gold stocks.

Even this short outline emphasizes the fact that the role of gold as a determinant of a nation's money supply varies greatly with both the degree and the type of monetary management employed. The long trend has been toward the use of more and more deliberate management. Within wide limits many monetary authorities have governed the money supply for the purpose of achieving other objectives rather than with a view to keeping its size in a constant relation to monetary gold stocks.

National and International Gold Standards

The functioning of a gold standard in any country is greatly affected by the number of countries employing it. This point is important because of the wide variations in the geographic coverage of gold standards during the past half century. For a few decades prior to 1914 gold standards were used by virtually every commercially important country in the world. Since World War I the number of countries employing this type of standard has fluctuated widely, the United States being almost alone in its use during part of the period. To bring out the importance of geographic coverage, we shall compare the extreme situation in which all the important countries have a gold standard with that in which one country alone maintains it.

Let us look first at the case in which every important country keeps its monetary unit constant in terms of gold. Several consequences result from this. The first is that exchange rates among the various national monetary units must remain virtually constant in the foreign-exchange market; the prices of the various moneys in terms of each other must remain virtually fixed. Since the value of each monetary unit is fixed relative to gold, the values of the various monetary units in terms of each other must be almost constant. The exchange value of gold standard moneys depends on their relative contents of pure gold. For example, if the British pound sterling is kept equal to 113 grains of pure gold and the United States

dollar is kept equal to 23.22 grains of pure gold, they must exchange at rates approximating $\text{£ } 1 = \$4.8665$, the ratio of their gold contents. As long as both units remain fixed in terms of gold, their exchange rates in the market cannot vary from this "mint parity" by more than the cost of gold shipments between the two countries. Any tendency for the pound to rise above $\$4.8665$ in the market by more than the cost of shipping 133 grains of gold from the United States to England would lead to gold shipments to England which would prevent any further rise. And any tendency for the pound to fall below $\$4.8665$ by an amount exceeding the cost of shipping 113 grains of gold from England would lead us to import gold in such quantities as to stop the decline. This principle applies to exchange rates among all the national moneys whose values are fixed in terms of gold. The virtual stability of exchange rates of all the important moneys is one of the great advantages claimed for international gold standards, because people can engage in international borrowing and lending as well as international buying and selling with little risk that exchange rates will fluctuate before the transaction is consummated.

A second consequence of the international gold standard is a close relation among price levels in the various countries. Price levels in terms of gold tend to be the same in all the gold standard countries; and since each monetary unit is fixed in terms of gold, prices in terms of monetary units tend to fluctuate in a parallel manner in all gold standard countries. Let us look first at this tendency under automatic gold standards. Suppose that the prices of goods and services in terms of gold tended to be higher in some countries than in others. The high-price countries would be good markets in which to sell and poor markets in which to buy. The low-price countries would be good markets in which to buy and poor markets in which to sell. As a result, the high-price countries would tend to buy abroad more than they sold abroad, and the low-price countries would tend to sell abroad more than they bought abroad, so gold would flow from the high-price to the low-price countries to balance their international payments. But the flow of gold out of the high-price countries would tend to lower price

levels there and the flow of gold into the low-price countries would tend to raise their price levels until price-level relationships among the countries were brought into equilibrium. The advocates of automatic international gold standards place great emphasis on this tendency of gold flows to effect a proper distribution of gold among the various countries and to keep price levels in line with each other. Critics of such systems often question the desirability of these results.

This explanation admittedly overstates the tendency of even automatic international gold standards to equalize the purchasing power of gold in the various countries. The relative heights of prices in different countries sometimes vary even more when the countries have highly managed gold standards. Yet it must be emphasized that the freedom of monetary authorities in managing their money may be closely limited under international gold standards. This is especially true of small countries. If a country on a gold standard persistently tries to keep its prices high relative to those of other countries (for example, tries to keep its prices from falling as much as those abroad), it may suffer serious losses of gold and be faced with the choice of going off the gold standard or reducing its prices in line with those of other countries. On the other hand, a country may keep its prices low relative to those abroad (for example, prevent its prices from rising as much as those abroad), only at the risk of accumulating excessive amounts of gold.

A third consequence of the international gold standard is that gold can find a market for monetary uses in all the important countries. It is demanded for monetary purposes not by one country alone but by many countries.

A national gold standard under which one country alone keeps its monetary unit stable in terms of gold while others employ different types of standards yields results that differ in several important respects from those of international gold standards. In the first place, it does not insure stable exchange rates among the moneys of the various countries. The stability of the dollar in terms of gold does not give it a fixed relation to the pound sterling if the pound fluctuates in terms of gold. Thus one of the great advantages claimed for the international gold

standard loses its validity as the area covered by gold standards decreases. In the second place, the use of a gold standard by a single country does not insure any stable relationship between its price levels and those of other countries. Since the exchange rates of the various moneys in terms of each other can fluctuate, the price levels in the various countries are free to move quite differently. Gold need no longer act as an automatic adjuster of international price relationships.

In the third place, the maintenance of a gold standard by one country alone may make it almost the sole demander of gold for monetary purposes. It is true that countries which are not strictly on gold standards often hold sizable quantities of gold in their monetary stocks and even add to them. Yet a lone country on a gold standard runs the risk that the entire world output of gold not needed for industrial uses will flow into its monetary system. Other countries may flood it with their gold stocks which they no longer want to hold; hence its monetary system is subjected to inflationary pressures and it exchanges useful goods and services for gold of questionable utility.

Summary of Gold Standards

The preceding sections indicate the danger of talking about *the* gold standard. The various monetary systems that have carried this name have varied greatly as to the extent to which gold coin circulates, the terms under which other types of money are redeemable in gold, the amount of deliberate management employed and the objectives of it, and the number of countries employing gold as a standard. The general trend since World War I has been toward reducing the role of gold in monetary systems. At the beginning of this century almost every important country was on a gold standard, gold coins were available for circulation, and gold played a powerful role in determining the size of the money supply, though deliberate management was far from absent. Since that time gold-coin standards have been replaced by gold-bullion and gold-exchange standards, deliberate management has greatly reduced the effects of gold stocks on money supplies, and the

number of countries using gold standards has been greatly reduced.

SILVER STANDARDS

Silver standards have played an important part in monetary history, but their role diminished rapidly after the middle of the nineteenth century. We shall therefore discuss them only briefly.

By a silver standard we mean the type of monetary system in which both the unit of value and all kinds of the nation's money are kept at a constant value in terms of silver. The steps required to accomplish this are the same as those under a full gold standard: (1) definition of the monetary unit in terms of silver, (2) free and unlimited coinage or purchase of silver at a fixed price, (3) free melting of silver coins or unlimited sale of silver at a price approximating the purchase price, (4) free interconvertibility of silver and all other types of money on a parity basis, and (5) free import and export of silver. The purposes of these provisions are the same as those under gold standards.

Various silver standards have differed significantly from each other. These differences have not been as great as those in the case of gold standards, however, because few of them survived into the period in which deliberate monetary management became so widespread.

BIMETALLIC STANDARDS

Though they have not been used for several decades and seem unlikely to be employed again, bimetallic standards played such an important role in monetary history prior to the twentieth century and were such a burning political and economic issue during the nineteenth century that we should consider them at least briefly. Out of these controversies rose such political battle cries as "the Crime of '73," "16 to 1," and "the Cross of Gold."

A bimetallic or double standard is one in which the unit of

value and all types of money in the country are kept at a constant value in terms of gold and also in terms of silver. It is, in effect, the simultaneous maintenance of both a gold and a silver standard. The steps necessary for stabilizing a nation's money in terms of both metals are the same as those outlined above for monometallic standards, except that the provisions for unlimited purchase, sale, and redeemability must include both metals. The mint values of the two metals are determined by the definition of the monetary unit. For example, in 1834 our dollar was defined as 371.25 grains of pure silver or 23.22 grains of pure gold. The weight of the silver dollar was fixed at 16 times that of the gold dollar; the mint value of gold was fixed at 16 times that of silver. In effect, the mint purchase and sale prices were fixed at \$1.29 an ounce for silver $\left(\frac{480}{371.25} = 1.29\right)$ and \$20.67 an ounce for gold $\left(\frac{480}{23.22} = 20.67\right)$.

As long as both gold and silver were purchased freely by the mint at these prices and as long as both gold and silver coins remained available, the market prices of the metals were fixed.

Many critics allege that in practice bimetallic systems prove to be not double standards but alternating gold and silver standards, with one metal driving the other out of circulation. They claim that the relative values of gold and silver in the market are likely to vary from those established at the mint, so that the metal undervalued by the mint will forsake its monetary use. That this has happened many times is true, but it is not inevitable. Both metals can be kept in circulation if their mint values are properly set at the beginning and appropriately adjusted in the light of subsequent developments.

Bimetallic standards have sometimes broken down because various countries adopted differing mint ratios for the two metals. For example, before 1834 our mint valued gold 15 times as highly as silver at the same time that the French mint ratio was 15.5 to 1. Thus, the French valued gold more highly in relation to silver than we did. The natural result was that gold deserted this country or did not come to it and that silver tended to become our only standard money. Arbitrageurs could profit by exporting gold and importing silver. An Ameri-

can could exchange 15,000 ounces of silver here for 1000 ounces of gold, trade the gold in France for 15,500 ounces of silver, and gain 500 ounces of silver to cover his costs and yield a profit. This process drained our system of gold; only silver remained. Realizing that this ratio was wrong, the United States changed it in 1834; but we went too far and fixed it at 16 to 1 while the French mint ratio remained 15.5 to 1. The result was what one might expect; silver disappeared from our monetary system. One could exchange 1000 ounces of gold for 16,000 ounces of silver here, exchange the silver in France for about 1032 ounces of gold, and gain 32 ounces of gold to cover costs and yield a profit.

The failure of bimetallism in the United States certainly does not prove that international bimetallism is inevitably doomed to failure; it merely indicates that a nation cannot hope to keep both metals in circulation if the relative values placed on them at the mint differ significantly from those fixed by the mints of other countries. If all countries, or even the most important ones, adopted bimetallism with the same mint ratios, if these ratios were properly adapted to the market ratios of the two metals when the system was adopted, and if the countries stood ready to alter the mint ratios in accordance with important subsequent changes in the demand and supply conditions for the two metals, there is no reason why both gold and silver could not be kept in circulation over long periods.

Several advantages were claimed for bimetallic standards as compared with either gold or silver monometallic standards. The first was that bimetallism provided convenient full-bodied coins for both large and small transactions. The prejudice in favor of full-bodied coins was strong during the period of bimetallism; credit money was widely suspect. Proponents of this system pointed out that it provided easily portable gold money for large transactions and convenient silver money for smaller payments—arguments which lose their force as credit money is developed. A second advantage claimed for international bimetallism was its tendency to stabilize exchange rates among bimetallic moneys, silver standard moneys, and gold standard moneys. Its adherents pointed out that as long

as gold and silver were stabilized in terms of each other, all moneys with a fixed value in gold or in silver would exchange for each other at nearly constant rates. Their prices in terms of each other could not fluctuate by more than the cost of shipping an equivalent amount of one of the metals. Thus, the effective use of bimetallism by any group of countries would link together all bimetallic and monometallic gold and silver moneys in an international network of stable exchange rates.

The third advantage claimed for bimetallism was its tendency to provide a standard money with more stable purchasing power than would result from the use of a monometallic standard. Its advocates maintained that the value of a monetary unit under bimetallism would be determined not by supply and demand conditions for only one metal, but by supply and demand conditions for two metals. And they believed that supply and demand for the two metals would fluctuate less widely than in the case of one metal alone; the fluctuations of the two metals would tend "to average out."⁴ This argument is probably valid. But it does not follow that the purchasing power of bimetallic moneys would be stable.

INCONVERTIBLE PAPER STANDARDS

Systems in which monetary units are not kept at a constant value in terms of a metal are usually called inconvertible paper standards. Under systems of this type the various kinds of money in circulation are usually maintained at parity with each other, but they are not kept constant in their relation to a metal. We cannot emphasize too much the broad scope of this category; the systems included under it vary greatly as to both form and functioning. Under some, the monetary authority continues to purchase a metal at a fixed price, thereby preventing the monetary unit from appreciating relative to the metal, but it does not sell the metal at a fixed price. Under others, no metal is either purchased or sold at fixed prices. Under some, the monetary authority carefully manages the

⁴ For an excellent brief discussion of this point, see W. S. Jevons, *Money and the Mechanism of Exchange*, Appleton, New York, 1892, pp. 137-140.

money supply to achieve economic stabilization. Under others, money is issued prodigally for revenue purposes. To lump all these widely varying systems into one group and brand them "good" or "bad" is to misread monetary history and to ignore the principles of money.

Inconvertible paper moneys have been held in low regard in the past largely because they were usually associated with periods of widespread economic disturbance. The continental currency of the American Revolution, the assignats of the French Revolution, the greenbacks of the Civil War, the inflation of World Wars I and II, the inconvertible money of the great depression—these and many others are often cited to prove that inconvertible paper standards are inferior to metallic standards and should be scrupulously avoided. These conclusions do not necessarily follow. During the periods from which these examples are taken, people in general believed in "metallism"; they wanted metallic standards as long as these could be maintained without great sacrifice of other objectives, and they used inconvertible paper standards only when their metallic standards had already broken down. They did not deliberately "adopt" paper standards; they reluctantly sought refuge in them when war, panic, depression, or other serious economic disturbances made it impossible for them to keep their money convertible in metal. Those who proclaim that "history proves that paper standards are less satisfactory than metallic standards" might better say, "History shows that paper standards used in periods of extreme economic disturbance function less well than metallic standards during less troubled periods." And perhaps they should add that metallic standards have a habit of breaking down during periods of war, panic, and depression, leaving paper standards to do their work.

All monetary standards, metallic as well as inconvertible paper, are now highly managed, and their success depends upon the quality of their management. Those who advocate metallic standards must prove that the maintenance of monetary units at a constant value in terms of some metal or metals facilitates monetary management and the achievement of desirable social objectives.

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Monetary Standards in the United States, 1792-1914

THE PRECEDING CHAPTER OUTLINED SOME OF THE MOST IMPORTANT characteristics of the various types of monetary standards. The purpose of this and the following two chapters is to explore the history of monetary standards; we shall center our attention on the experiences of the United States but relate them to developments in other countries. Such a study will elucidate a number of monetary principles, emphasize the changing nature of monetary institutions, and provide the background necessary for understanding our present monetary system. Our monetary history is especially enlightening, for in 150 years we have employed several kinds of bimetallic, gold, and inconvertible paper money standards.

BACKGROUNDS

Our Constitution provides: "The Congress shall have power to coin money, regulate the value thereof, and of foreign coin . . . ," and "No State . . . shall coin money, emit bills of credit, make anything but gold and silver coin a tender in payment of debts." Bitter experience had convinced the delegates to the Constitutional Convention, who were generally opposed to the unnecessary concentration of power in the federal government, that the issue of money should be a

function of the central government and that state powers in this field should be eliminated or closely regulated. They had learned this lesson from the monetary experiences under the Articles of Confederation. The Articles had given Congress the power to coin money and to regulate the alloy and value of coins struck by the states. But the states retained the right of coinage, the right to issue paper money, the right to sponsor banks which could issue paper money, and the right to charter private banks with the privilege of note issue. Without centralized supervision of the amounts and types of money issued, the result could be only confusion.

The circulating medium before 1792 was a hodgepodge. It included coins issued by the Confederation, coins issued by the states, coins issued by private firms licensed by the states, token coins shipped here by foreign minters, paper money issued by states, paper money issued by banks, and many varieties of foreign coins—British, French, Portuguese, Dutch, and Spanish. Some of these were full weight, but others were badly deteriorated. They were stated in various monetary units. Their values relative to each other fluctuated from time to time and from one state to another. The desirability of a uniform national currency was evident, and this could be achieved only by centralizing the money-issuing power.

The most plentiful of all the foreign coins in circulation was a Spanish silver coin known variously as a peso, peso duro, piece of eight, eight-real piece, or dollar. The colonists, being largely of English extraction, usually kept accounts in terms of pounds, shillings, and pence, but the Spanish dollar was the most commonly used medium of payment. It was only natural, therefore, that our monetary unit should be called a "dollar."

THE BIMETALLIC STANDARD, 1792-1834

The first monetary law enacted under the Constitution, the Coinage Act of 1792, provided for the creation of a mint and established a bimetallic standard. The unit of value was

named the "dollar," which was in effect defined as 371.25 grains of pure silver or 24.75 grains of pure gold.¹ Thus, the mint ratio, or relative values of the metals at the mint, was 15 to 1.

The methods used to arrive at the definition of the dollar and to determine the mint ratio are interesting. As we just said, the dollar was chosen as the monetary unit because Americans were already so familiar with the Spanish silver coin of that name. The founders of the system wanted the new United States silver dollar to have the same silver content as the Spanish coin. But the Spanish dollars in circulation here were not uniform; some of them were worn and even the new ones issued in different periods varied somewhat. Our silver dollar was therefore given a weight which was supposed to be equal to the "average" weight of the circulating Spanish coins. It was by this process that the silver content of the dollar was fixed at 371.25 grains, the weight that has prevailed to this day. Since no gold coins whose content was stated in terms of dollars had been used here, it was necessary to determine their content by finding the appropriate relative values of gold and silver. After some investigation, which does not now seem very scientific, it was concluded that the market value of gold was 15 times that of silver. The mint ratio was accordingly fixed at the supposed 15-to-1 market ratio; gold dollars were to weigh $\frac{1}{15}$ as much as silver dollars, or 24.75 grains. We shall see later that this ratio was inappropriate.

The Act of 1792 authorized minting of the coins shown in the table on the next page, unlimited coinage being permitted for all the gold and silver coins. At first no coinage charge was made if the supplier of the metal would wait for his money, but a charge of $\frac{1}{2}$ of 1 per cent was made if coins were demanded immediately. A few years later, a charge equal to the actual cost of minting was imposed.

It is important to note that all the coins were full bodied. No provision was made for paper money or token coins. So great was the opposition to credit money that even the cent and half-cent pieces contained copper with a commodity value equal to their monetary value. The first clumsy copper

¹ The coins were, of course, alloyed with metals of almost negligible value.

cent was two-thirds as large as a silver dollar. This failure to provide token fractional money was to plague the country for more than half a century. During much of that period insufficient "change" remained in circulation and all sorts of makeshift substitutes had to be employed.

The great variety of foreign coins in circulation here posed a serious problem. It was hoped that they would be replaced

Name of Coin	Principal Metal	Value in Dollars	Precious Metal Content in Grains
Eagle	Gold	\$10.00	247.5
Half eagle	Gold	5.00	123.75
Quarter eagle	Gold	2.50	61.875
Dollar	Silver	1.00	371.25
Half dollar	Silver	.50	185.625
Quarter dollar	Silver	.25	92.8125
Disme	Silver	.10	37.125
Half disme	Silver	.05	18.5625
Cent ^a	Copper	.01	264.0
Half cent ^a	Copper	.005	132.0

^a Within the next few years the copper content of the cent and half cent was reduced somewhat.

by the newly authorized United States coins, but they were needed in circulation until the new money could be minted. A law of 1793 therefore provided that Spanish dollars weighing at least 415 grains ($\frac{9}{10}$ fine) should circulate with full legal-tender powers and that for a three-year period other foreign coins should be legal tender in proportion to their gold and silver content. The three-year limitation on the legal-tender powers of foreign coins proved to be a vain hope, for our own coins remained so limited in quantity that the legal-tender powers of foreign coins were extended time after time; they disappeared completely only after 1856. The provision that Spanish dollars should be legal tender only if they weighed at least 415 grains and that other foreign coins should be legal tender in proportion to their gold and silver content was unrealistic. Weighing them in each transaction was so inconvenient that they tended to circulate at values in dollars which depended not on their actual gold or silver content, but

on their content when new. The general custom of accepting lightweight foreign coins in payment at their full face value helped to keep United States coins out of circulation.

The Coinage Act of 1792 and supplementary laws passed during the next several decades failed in almost every respect to achieve their objectives. They did not keep both gold and silver coins in circulation, they did not eliminate foreign coins, and they did not provide an adequate circulation of United States coins.

In the first place, the mint ratio of 15 to 1 proved to be inappropriate. Though this may have approximated the market ratio in 1792, it placed too low a value on gold in later years. Although our mint valued one part of gold at only 15 parts of silver, the French mint valued it at 15.5 parts of silver. The natural result was that little gold came to our mint and the few gold coins struck by the mint soon disappeared.²

In the second place, only a small quantity of silver was taken to the mint for coinage and most of the silver coins that were minted were exported. There was no incentive to take lightweight silver foreign coins to the mint. In fact, such action was generally unprofitable. Even badly worn foreign coins usually circulated at their full face value, whereas they were accepted at the mint only at a value determined by their actual silver content, and even then the supplier had to wait some time for his money and pay small mint charges. This fact explains why so little silver was offered for coinage. The silver coins that were struck disappeared because of the profitability of exchanging them in the West Indies for full-weight Spanish dollars. Though the United States dollar contained slightly less silver than a full-weight Spanish dollar, it was freely exchangeable for Spanish dollars in the West Indies on a dollar-for-dollar basis. Traders therefore found it profitable to bring new Spanish dollars to the mint, have them coined into a larger number of United States dollars, exchange these in the West Indies for new Spanish dollars, and so on in an endless chain. To stop this practice, Jefferson in 1806 suspended the coinage of silver dollars, the suspension re-

² See p. 74.

maining in force until 1834. Though the mint would still accept silver for coinage into fractional money, the amount of silver offered for this purpose was small (only \$26,231,000 for the 38 years, 1792-1830) and many of the fractional coins were exported. The result was an almost chronic shortage of fractional money, an inconvenience which was only partially remedied in a highly unsatisfactory way by the issue of bank notes in denominations of less than a dollar and the creation of many kinds of tokens by private firms.

We have already seen that most of the coins in circulation during this period were of foreign issue and that most of them were underweight. The larger part of our money supply was made up of bank notes whose quality varied widely. Though it was believed unwise for the government to issue paper money, many state-chartered banks and two banks chartered by the federal government (the First and Second Banks of the United States) were given broad powers of note issue. Some of the banks used this power with moderation and maintained their notes at parity with metallic coins most of the time. More of them, however, were less careful and allowed the value of their notes to fluctuate in terms of metallic coins and in terms of the notes of other banks.³ As a result, the circulating medium in this period was composed largely of foreign coins stated in various monetary units and in various states of disrepair, and a motley collection of bank notes issued by banks under widely varying laws and carrying various values relative to metallic moneys.

Though this country was formally on a bimetallic standard from 1792 to 1834, the money in actual use was not kept at a constant value in terms of gold and silver. During the War of 1812 both the federal government and the banks created so much paper money that metallic coin virtually disappeared; the country was in fact on an inconvertible paper money standard. And during much of the remainder of the period a large part of the bank notes in circulation were not in practice kept redeemable in specie.

In summary, our first monetary system was far from suc-

³ For a fuller discussion of bank operations during this period, see pp. 216-222.

cessful, and this failure was due to improper management. A few relatively simple actions would have remedied the ills of the system. (1) Both gold and silver could have been kept in circulation by appropriate adjustments of the mint ratio to market ratios. (2) Foreign silver coins could have been enticed to the mint to be made into United States coins by reducing the silver content of the dollar by a few grains; this would have made it profitable to bring foreign coins to the mint, even those that were not full weight, without inducing any significant inflation. (3) An adequate supply of fractional coins could have been kept in circulation by giving them a monetary value considerably in excess of their value as commodities and by coining them only in limited quantities to be determined by the mint. (4) Bank notes could have been regulated in various ways to keep them at par in terms of gold and silver, except in times of crisis.

THE BIMETALLIC STANDARD, 1834-1861

We have seen that the Coinage Act of 1792 undervalued gold so that it practically disappeared from circulation. An act of 1834, amended in 1837, sought to restore gold to circulation by giving it a higher value at the mint. Though a congressional committee recommended a new mint ratio of 15.6 to 1, which was closely in line with that of the French, Congress decreed that the ratio should be 16 to 1. This was accomplished by leaving the dollar's silver content unchanged and reducing its gold content from 24.75 to 23.22 grains. Thus, the mint price of gold was raised from \$19.39 to \$20.67 an ounce. The motives of Congress in adopting the 16-to-1 rather than the 15.6-to-1 ratio are not clear. Some members undoubtedly voted for the higher ratio to insure that gold would be drawn into the monetary system. It also appears, however, that some wanted the greater reduction in the gold content of the dollar in order to secure higher prices for the metal that was being mined in North and South Carolina, Virginia, Georgia, and a few of the other southern states. This

is the first in a long series of cases in which the interests of metal producers were to influence our monetary policy.

The new law overvalued gold and undervalued silver. With our mint ratio at 16 to 1 while the foreign ratio approximated 15.5 to 1, it was profitable to export silver and import gold, and silver virtually disappeared from our monetary system after about 1843. In the 25-year period 1836–60, gold coinage amounted to nearly \$446 million, but only 3 million silver dollars were struck. Fractional silver coinage amounted to only \$33 million from 1836 through 1850. To some extent the lack of silver dollars was remedied by the coinage of gold dollars, but the lack of fractional silver was a serious handicap to business. "Shinplasters" (fractional paper issued by banks) and private tokens were both inadequate in amount and variable in value. Finally, in 1853, Congress took the obviously needed step and converted fractional silver into token coins; free coinage of fractional silver was stopped and the Treasury was given the power to determine the amounts to be issued. The 6.9 per cent reduction in their silver content was far too small, however, and these coins disappeared during the Civil War inflation.

In this period, as in the earlier one, bank notes made up a large part of the circulating medium. Their issue was still poorly regulated, so that their value, both in terms of gold and silver and in terms of other goods and services, varied widely.

We shall see later that the outbreak of the Civil War marked the end of bimetallism as the official monetary policy of the United States.

INCONVERTIBLE PAPER STANDARD, 1861–1879

No nation has fought a major war without suspending its metallic monetary standard. The Civil War was no exception; by the end of 1861 both the government and the banks had ceased to redeem their monetary issues in specie, and the country was on an inconvertible paper standard which it kept until 1879, when it adopted a gold standard for the first time.

The Civil War Period, 1861-1865

The bimetallic standard was abandoned, leaving the country with inconvertible paper money, because of the heavy fiscal needs of the Treasury. The war was unexpectedly expensive; federal expenses during the four years following June, 1861, totaled \$3,348 million. But Congress was unable, or at least unwilling, to increase tax collections proportionally; consequently the government's revenues during the four-year period totaled only \$729 million, or less than a quarter of its expenditures. The \$2,619-million deficit had to be met in other ways. Some of it was covered by borrowings from abroad and from individuals within this country; the rest, by the inflationary creation of money. New money was created and used to meet military payrolls, to pay for provisions and equipment, and to cover other government expenses. This new money was created in three principal ways: (1) Banks, both the old state-chartered banks and the newly authorized national banks, created and lent additional bank notes to the government as well as to private business. (2) Banks created new checking deposits which were given to the Treasury in exchange for its bonds. This was a less important source of inflation during the Civil War than it was to become later. (3) The Treasury itself issued paper money in the form of circulating United States notes, or "greenbacks." These notes, of which about \$430 million were issued, were given full legal-tender powers.

As a result of these inflationary issues of both bank and government credit money, the total money supply rose from about \$690 million in 1860 to approximately \$1,540 million in 1865, an increase of over 120 per cent. This increase, together with a rise in the velocity of money, supported a marked rise in price levels. Wholesale prices rose about 115 per cent from 1861 to 1865; the value of the dollar in the wholesale market declined 54 per cent. Other prices rose at widely varying rates, thereby effecting highly arbitrary shifts of wealth and income.

Though neither the Treasury nor the banks would redeem their money in gold and silver, the mint stood ready through-

out the war to buy both metals at the old prices—\$1.29 an ounce for silver and \$20.67 an ounce for gold. But no metal was offered to them; in fact all gold and silver coins, including even fractional silver, disappeared from circulation. This was inevitable, because the prices of gold and silver rose along with those of other commodities. For example, the average market prices of gold and gold coin in terms of paper money were as follows:

Year	Average Market Price per Ounce of Gold	Average Market Price of Gold Dollar in Terms of Paper Dollars
1861	\$20.67	\$1.00
1862	23.42	1.13
1863	30.01	1.45
1864	42.00	2.03
1865	32.51	1.57

Silver prices rose comparably. With the market prices of gold and silver so far above mint prices it was only to be expected that these metals would avoid the mint and that gold and silver coins would disappear into export channels, private hoards, and industrial uses.

In summary, by the end of the Civil War in 1865, the increase of bank money and greenbacks had raised the total money supply more than 100 per cent above its 1860 levels, wholesale prices had more than doubled and other prices had risen by varying amounts, gold and silver had disappeared from circulation, and the market prices of both metals were far above the mint prices. The paper dollar was greatly depreciated both in terms of gold and silver and in terms of its purchasing power for other goods and services.

Continued Inconvertibility, 1865–1879

With the return of peace in 1865 and the easing of the government's fiscal requirements, the nation faced the problem of determining the future of the dollar. Remembering the misbehavior of inconvertible money during the war and wrongly assuming that an inconvertible standard could not operate satisfactorily in peacetime, a clear majority favored

returning to a metallic standard. But this raised two difficult and interrelated questions: (1) What should be the purchasing power of the dollar for goods and services? (2) What should be the metallic content of the dollar? Bitter controversies ensued between the groups that would benefit from high price levels and those that would be favored by low prices.

We have already noted that price levels in terms of paper dollars rose by more than 100 per cent during the war. But prices in other countries in terms of gold and gold money remained almost constant during the period. These facts made it impossible for the United States to maintain prices as high as those prevailing at the end of the war and at the same time keep the dollar redeemable in the prewar amounts of gold and silver. Any attempt to do so would have brought an immediate drain of gold, for this country would have been such a good market in which to sell and such a poor market in which to buy.⁴ With the dollar again equal to 23.22 grains of gold, foreigners would have found that things cost twice as much gold here as abroad and would have bought but little in our markets. We, on the other hand, would have found it cheaper to buy abroad and would have exported gold for that purpose. Thus, in view of the fact that prices in terms of gold had not risen in other countries, we had either (1) to reduce the metallic content of the dollar below prewar levels, or (2) to lower our price levels, or (3) to reduce to the necessary extent both our price levels and the metallic content of the dollar.

Price levels could have been maintained at or near 1865 levels if Congress had been willing to decrease the gold content of the dollar by approximately 50 per cent. For example, a redefinition of the dollar as 11.61 grains of gold (instead of 23.22 grains as in the prewar period) would have raised the price of the British pound sterling from about \$4.87 to about \$9.73 $\left(\frac{113}{11.61} = 9.73\right)$. This 50 per cent decrease in the price of the dollar in the foreign-exchange market would have made purchases here at 1865 prices as attractive as they were before

⁴ See pp. 70-71.

the war when our price levels were lower. Though foreigners would have had to pay twice as many dollars for our products, each one of their monetary units would have bought twice as many dollars. Americans would not have found purchases abroad any more attractive than before the war, for they would have had to pay twice as many dollars for each unit of foreign money. Thus, the country could have reestablished a metallic standard and still have maintained prices at or near the levels prevailing in 1865 if it had been willing to reduce the metallic content of the dollar sufficiently. This course was not chosen, however.

In the end, Congress decided to establish a gold standard and to give the dollar its prewar gold content of 23.22 grains.

TABLE 7. WHOLESALE PRICES IN THE UNITED STATES AND GREAT BRITAIN, 1860-1879

Year	Wholesale Prices in the United States 1860 = 100	Wholesale Prices in Great Britain 1860 = 100
1860	100	100
1865	216	102
1870	142	97
1875	128	97
1878	101	88
1879	97	84

To do this it was necessary to allow prices in this country to fall until the gold in a dollar would purchase as much here as it would in other countries. This deflationary process would have been painful enough if prices abroad had remained stable at the levels prevailing in 1860. Unfortunately, however, foreign prices were also declining, so the extent of our deflation was intensified. This is shown in Table 7. By 1879 wholesale prices in Great Britain had fallen 16 per cent below their levels in 1860. It was therefore necessary for us to allow our prices to fall about 55 per cent below their 1865 levels, and even somewhat below their 1860 levels, before the dollar was given its former gold content in 1879. This severe and protracted decline of prices goes far toward explaining the wide-

spread discontent that prevailed during the period following the Civil War. Costs declined only slowly; hence the decline of prices acted as a serious obstacle to production. And the marked increase in the purchasing power of the dollar added greatly to the burdens of the debtor classes. A high price was paid for restoring the dollar to its prewar gold value.

In view of the general belief that inconvertible paper standards are necessarily inflationary standards, it is well to remember that for nearly 15 years after the Civil War our inconvertible paper standard was coupled with highly deflationary monetary policies. Our money supply was not permitted to expand proportionally with the great growth of trade resulting from expansion of territory, growth of population, industrialization, and improvements in technology. How much faster our economic development would have been in the absence of deflationary pressures cannot be known.

THE GOLD STANDARD, 1879-1900

As already indicated, the United States adopted a gold standard for the first time in 1879. It had already indicated its intention of deserting bimetallism by enacting in 1873 a bill which withdrew from silver dollars the privilege of free and unlimited coinage. In 1875 the Resumption Act provided for the future return of the dollar to a gold basis, and the dollar was actually made convertible into gold at the beginning of 1879.

The End of Bimetallism

Why did the United States forsake its historic bimetallic standard and embrace a monometallic gold standard? This question cannot be answered without looking at monetary developments in other countries. Prior to 1870 most other countries, like the United States, had employed bimetallic standards, though some were on monometallic silver standards. Great Britain was almost alone in its use of a gold

standard, having adopted it in 1816.⁵ There were strong reasons why other nations should want to adopt the same monetary standard as Great Britain. It was the most important industrial, commercial, and financial country in the world. Its own imports and exports accounted for a considerable part of world trade; a large part of international trade was financed by bills of exchange written in British pounds; and businesses in many nations were deeply indebted to London on both long-term and short-term account. Nations were inclined for several reasons to adopt a gold standard because it was the standard used by economically preeminent Britain. The first reason was the result of bad logic: Britain was an economically powerful nation, it used a gold standard, therefore a gold standard must make nations employing it economically powerful. It was often said that "gold is the money of rich nations, silver the money of poor nations." Other reasons for following Britain's example were more rational. Those who were deeply indebted to London wanted their money stabilized in gold so that their sterling debts would not fluctuate in terms of their own money. And those who were using sterling drafts to finance international trade wanted stable exchange rates so that their risks would be reduced.

Nations with bimetallic standards could, of course, maintain stable exchange rates with the pound sterling as long as they could keep gold in their monetary systems. This was not difficult to do before about 1870, for most of the world's mints had been flooded with gold following the great gold strikes in California and Australia in the 1840's. But several developments after 1870 changed this situation drastically and threatened bimetallic countries with loss of their gold, leaving them with *de facto* silver standards. The first was the adoption of a gold standard by the newly formed German Empire in 1871. The 33 independent German states had previously had

⁵ This adoption of gold by Great Britain has been called an "historical accident" resulting from an earlier unintentional overvaluation of gold coins relative to silver. Having become accustomed to the use of gold and unaccustomed to the use of silver during the eighteenth century, the British found it easy to drop full-bodied silver coins from their coinage list and to limit free coinage to gold. See W. A. L. Coulbourn, *An Introduction to Money*, Longmans, Green, London, 1938, pp. 130-131; Anatol Murad, *The Paradox of a Metal Standard*, Graphic Arts Press, Washington, 1939.

separate monetary systems, all except one based on silver. The new central government, influenced by the business interests who wanted stability with the pound, and also hoping to challenge Britain's economic supremacy, adopted a single gold standard, stopped the free coinage of silver, and began to sell some of its accumulated silver in the world's markets. For many years other countries feared this "flood" of German silver. The second factor was the decreased import of silver by India. Unfavorable balances of payments drastically reduced the amount of the white metal flowing to the Far East. The third factor was the great increase of silver production in the western part of the United States. So huge was the output of these new mines that the world's production of silver during the forty years following 1870 was as great as the total world production during the preceding three and a half centuries.

As a result of this combination of events—the German refusal to continue the free coinage of silver and the threat to export large amounts of the white metal, the decreased demand for silver by the Orient, and the tremendous increase in silver production—bimetallic countries feared such a flood of silver into their mints that they would be unable to retain their gold. They therefore hastened to end the free coinage of silver and to adopt a single gold standard. The movement was cumulative; every abandonment of the free coinage of silver increased the fear of silver in the remaining bimetallic countries and enhanced their eagerness to follow suit. Silver was still used as subsidiary money with limited coinage, but it was no longer a standard. The dates on which the various countries adopted gold as a single standard are shown in Table 8.⁶

The "Do Something for Silver" Movement, 1873–1900

Silver did not take its demotion from the high status of a monetary standard to the lowly position of a material for subsidiary coins without loud and long protests. Even before

⁶ The dates are approximate only, for some of the countries made the change from bimetallicism or monometallicism (silver) to gold in several steps.

the dollar was stabilized in terms of gold in 1879, there began a strong movement to restore bimetallism or at least to increase greatly the monetary use of silver. Not even the tariff was a subject of greater controversy between 1873 and 1900. The cessation of free silver coinage was called "The Crime of '73" and demands were made for "free silver" at a coinage ratio of "16 to 1." Two powerful groups working together almost succeeded in restoring bimetallism and they were successful in forcing large government purchases of silver for

TABLE 8. DATES OF ADOPTING GOLD STANDARDS

Great Britain	1816	Holland	1875
Germany	1871	Uruguay	1876
Sweden	1873	United States	1879
Norway		Austria	1892
Denmark		Chile	1895
France	1874	Japan	1897
Belgium		Russia	1898
Switzerland		Dominican Republic	1901
Italy		Panama	1904
Greece		Mexico	1905

monetary use in the years following 1878. These groups were: (1) western silver producers, and (2) the groups who were being injured by declining prices.

The market price of silver could not fall below the mint price of \$1.29 an ounce as long as free coinage was permitted. But the termination of free coinage both here and abroad, coupled with the tremendous increase in production and the reduced demand for monetary use, permitted silver bullion prices to fall markedly. Average prices of silver per ounce in New York were as follows:

Year	Price per Ounce
1874	\$1.27
1879	1.12
1885	1.06
1890	1.05
1895	.66
1900	.60
1905	.61

Silver producers, not liking this decline in the price of their product, exerted strong pressure on the government to increase its purchases for monetary use.

Though they could always count on aggressive support by the "silver Senators," silver producers would probably have failed in their demands if they had not been supported by large groups who were being injured by the continuing decline of price levels. We have already noted the decline from 1865 to 1879. This decline continued until 1897. By that year wholesale prices had fallen 64 per cent below their 1865 levels and 20 per cent below their levels in 1879. Debtor groups, especially farmers, protested vigorously against this increase in the real burden of their debts, and falling prices were widely blamed for the "hard times," unemployment, and widespread business failures of the period. These groups were in favor of any monetary measures that would arrest the fall of prices and bring about price increases. They therefore joined forces with the silver interests to secure the remonetization of silver.

The silver advocates achieved limited successes in 1878 and 1890. Under the Bland-Allison Act of 1878 the Treasury purchased during the next twelve years more than 291 million ounces of silver for monetary use. And under the Sherman Silver Purchase Act of 1890 it purchased another 169 million ounces of the metal before the act was repealed in 1893. It should be noted, however, that these acts did not reestablish silver as a standard money; the Treasury, acting under orders from Congress, determined the amount to be coined and did not purchase enough to raise the market price to the level of the old mint price. Undaunted, the silver groups backed William Jennings Bryan for President in 1896, demanding free silver coinage at a 16-to-1 ratio. Bryan's defeat marked not the death but only the temporary decline of the demand that we "do something for silver."

Were the silver advocates right or wrong? Many historians have branded them as selfish groups interested only in maintaining silver prices or in paying off their debts with inflated money. The silver producers' case was indeed weak; producers of any precious metal—gold, silver, or platinum—have no

more right to demand unlimited government purchase of their output at fixed prices than do producers of any other commodity. The opponents of falling price levels cannot be dismissed so easily. The protracted deflation was highly injurious to them, as it was to the economic system as a whole, and it might have been largely avoided if all the principal nations had kept bimetallic standards. One can argue convincingly that it was a mistake for the world to adopt monometallic standards, or at least that it was a mistake to do so without lowering the gold content of monetary units or otherwise expanding the money supply in proportion to the increase in trade. But the United States could not alone remonetize silver and still remain on a gold standard. Any attempt to do so would probably have led to great flows of silver into our monetary system, higher prices here than abroad, and the loss of all our gold to other countries. We had two general choices: (1) We could maintain a gold standard with an unchanged gold content for the dollar, in which case our price levels would have to decline with those abroad, or (2) we could expand our money supply in various ways to prevent our price levels from falling, in which case we would have to abandon gold or decrease the gold content of the dollar. We may therefore rephrase our question as follows: "Was maintenance of the gold value of the dollar, with the resulting stability of exchange rates and other advantages, worth all the discontent and hardship that it necessitated?" Economists differ widely in their answers to this question.

THE GOLD STANDARD, 1900-1914

The period 1900-14 may well be called "the golden age of gold standards." Most of the important countries of the world were on gold-coin standards, the period was unusually prosperous, and criticisms of these standards subsided. This was in no small degree due to increased gold production and the expansion of other types of money. The world's rate of gold production during the early years of the twentieth century was more than three times as high as it had been in the period

preceding 1896. This rise was the result largely of the invention of the cyanide process of amalgamation and new gold discoveries in the Rand district of the Transvaal, in the Klondike-Yukon area, and in Canada. There is much truth in the statement that the cries for silver money were stilled by the rush of gold. Moreover, as we shall see later, banks were developing rapidly during this period and contributed generously to the supply of money. The total money supply (coins, paper money, and checking deposits) tripled between 1896 and 1914, and wholesale prices rose more than 40 per cent. Occasional complaints against the rising cost of living were lost in the jubilant praise of prosperity. Early in 1914 it seemed that gold standards would have a long and virtually uncontested reign in almost every economically important country.

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Monetary Standards, 1914-1933

THE WORLD-WIDE REIGN OF GOLD STANDARDS WAS BROUGHT to an abrupt end by World War I. Almost all the important countries abandoned gold soon after the outbreak of the war, and many continued to use inconvertible paper standards for some time after the return of peace; only a few went back to gold before 1925. By 1929 most nations had reestablished some form of the gold standard, though often with marked reductions in the gold value of their moneys as well as far-reaching changes in the functioning of their monetary systems. This new "golden age" was brief indeed; the restoration of gold standards had barely been completed in 1929 when the great depression forced one country after another to end the redeemability of its money in gold. Inconvertible paper standards, not gold, have been the dominant type of monetary system since about 1931.

Though far from constant in its loyalty, the United States has been the world's most faithful adherent to the gold standard since 1914. In brief, our monetary standards since that time have been as follows: (1) 1914-17, gold coin; (2) 1917-19, inconvertible paper; (3) 1919-32, gold coin; (4) 1933, inconvertible paper; (5) 1934-41, gold bullion, with the gold content of the dollar reduced by 40 per cent and the redeemability of our money in gold limited in widely varying degrees at different times; (6) 1942-45, inconvertible paper; and (7) since 1945, gold bullion of the 1934-41 type.

WORLD WAR I AND THE EARLY POSTWAR PERIOD

Monetary developments during World War I followed, in general, the familiar pattern of wartime inflation. All the belligerents suspended their metallic standards and allowed their monetary policies to be dominated by the fiscal needs of their treasuries. Almost as soon as it became a belligerent, each nation refused to redeem its money in gold or to allow free gold exports. In most cases gold coin and bullion were called in by the government or central bank and tight restrictions were placed on the export of funds in any form. These limitations had four general purposes: (1) to prevent the nation's gold and other moneys from falling into the hands of the enemy; (2) to conserve its gold and holdings of foreign moneys for the purchase of essential war materials abroad; (3) to maintain a sufficient gold reserve in the treasury or central bank to "preserve general confidence" in the nation's money (though why "confidence" should be promoted by the maintenance of an inaccessible gold reserve is difficult to understand); and (4) to prevent operations in the foreign-exchange markets that would bring about undesirable fluctuations.

In addition to ending the redeemability of their money in gold, nations resorted to large inflationary issues of money as a means of war finance. Faced with expenditures of unprecedented size and unable—or at least unwilling—to raise tax rates sufficiently, every belligerent incurred heavy budgetary deficits. Only a few countries collected enough taxes to meet more than half of their expenditures. Part of their deficits was covered by borrowing from individuals and business firms. The remainder was met through the inflationary creation of new money. In broad outline the inflationary process was similar to that of earlier major wars, but the technique of money creation was much more sophisticated. Treasuries relied not so much on the issue of new government paper money as on the manufacture of new central bank and commercial bank money in the form of checking deposits and, to

a lesser degree, bank notes. Treasuries sold their bonds to banks, which gave in return newly created checking deposits that could then be paid over to business firms and individuals in exchange for the goods and services needed by the government. Banks also lent new checking deposits to individuals, who used them to buy government bonds. The central banks (such as the Bank of England and the new Federal Reserve banks in the United States) were turned into money-creating institutions, supplying new money themselves and providing

TABLE 9. WHOLESALE PRICES DURING PEAK
YEAR OF INFLATION AFTER WORLD WAR I¹

Country	Peak Year of Inflation	Wholesale Price Index (1913 = 100)
United States	1920	226
United Kingdom	1920	283
Canada	1920	244
Japan	1920	259
Holland	1918	376
Sweden	1920	359
Czechoslovakia	1921	1653
France	1926	854
Italy	1926	654
Belgium	1927	847
Germany	1923	Many trillions

additional reserves to commercial banks to insure that they would be able to continue their creation of money. It was largely by this process that money supplies were greatly expanded during the war and early postwar period.

These great expansions of money supplies, coupled with a greater rapidity of spending and an inability to expand the physical output of goods and services sufficiently, brought about marked price increases in all the major countries. Even neutrals like Holland and Sweden allowed their price levels to soar. Countries varied widely, however, as to both the duration and the extent of their inflation. This is shown in Table 9. Some, such as the United States and Great Britain,

¹ League of Nations, *International Statistical Yearbook*, 1927, Geneva, 1928, pp. 208-210.

succeeded in terminating their inflationary policies within two years after the end of the war and prevented prices from rising to more than double or triple their prewar levels. Others failed to bring their budgets into balance for several years and suffered prolonged inflation. For example, France and Belgium reached the peak of their inflation only in 1926 and 1927, when wholesale prices had risen to more than eight times their prewar levels. In a few countries—among them, Germany, Austria, and Russia—prices rose astronomically; the purchasing power of their monetary units virtually disappeared.

Some Problems of Resumption

Almost every country looked upon its inconvertible paper standard as only a temporary wartime expedient and hoped to return to gold as soon as this became feasible. Most of them seemed to believe that they could turn the clock back and reestablish the same type of international gold standard that had functioned so well during the years immediately preceding the war. In this they were sadly disappointed; the war had changed monetary, financial, and basic economic conditions so drastically that the reestablishment of any kind of gold standard on an international basis presented difficult problems, and the gold systems that were reestablished were never again to operate in the same way as the prewar standards. What were these war-created monetary, financial, and economic changes that were to affect monetary systems so much?

The first was the great variation in the extent of inflation in the different countries. At the outbreak of the war in 1914, price levels in the various countries were in approximate equilibrium with each other. Gold had about the same purchasing power in all of them, and the various national monetary units possessed purchasing power approximately proportional to their gold content. International gold movements had effected the necessary adjustments in price levels so that nations could trade freely and still retain their appropriate share of the world's gold stocks. The varying degrees of in-

flation during the war and early postwar period completely upset these international price-level relationships. For example, in 1920 the various monetary units had lost the following percentages of their 1913 purchasing power over wholesale goods:

United States dollar	56%
English pound	65%
French franc	80%
Swedish krona	72%
German mark	over 90%

Price level discrepancies became even more pronounced during the next few years.

These drastic changes in the relative height of national price levels raised difficult and highly controversial questions of monetary policy. It was clear that no country could hope to keep its money redeemable in gold unless the purchasing power of gold in that country was approximately as great as it was in other countries. Thus, each country whose prices had risen by more than the world average had to choose among three general monetary policies: (1) It could give its monetary unit its prewar gold content. But in order to do this and still maintain enough gold to keep its money convertible it would have to lower its price levels sufficiently to give gold as much purchasing power as it had in other countries. For many countries this would have meant a painful period of falling prices. (2) It could allow its internal price levels to remain high and decrease the gold content of its monetary unit enough to enable it to retain gold. The reduced cost of its money in the exchange markets would offset the effect of its high internal prices so that it could still maintain its place as a seller in world markets. Though this policy would enable a country to avoid prolonged deflation, it was understandably unpopular with those who were injured by high price levels, especially creditors. (3) It could effect a compromise between lowering its price levels and reducing the gold content of its monetary unit, lowering prices to some extent and also reducing somewhat the gold content of its money. As we shall see later, each of these policies was adopted by one country or another.

It must be emphasized that the process of reestablishing a workable international gold standard involved securing *appropriate relationships among the price levels of the various countries* and *appropriate relationships among the gold content of the various national monetary units*. Thus, the policy of each country as to the gold value of its monetary unit and the height of its prices had to be formulated in the light of monetary policies elsewhere. For example, after the United States had given the dollar its prewar gold content, no nation could successfully determine its policy as to prices and the gold value of its money without reference to the purchasing power of gold here. On the other hand, our price levels and our gold supplies were much influenced by the behavior of prices abroad and by the gold values given to foreign money. The problem of fixing new gold parities was unquestionably one that could be solved with a minimum of friction only through wholehearted international cooperation. But there existed neither the spirit nor the organization to achieve this necessary coordination.

A second legacy of the war that was to affect the operation of gold standards and monetary policies in general was the great change in the international economic and financial position of various countries. For example, the United States was a heavy debtor on international account when the war broke out in 1914. Soon thereafter we proceeded to pay off our debts to foreigners and to lend large amounts abroad. The British, to pay for war materials, sold back to us large amounts of our securities that they had previously held, and borrowed heavily in our loan markets before our entrance into the war. After our entrance into the war, we lent billions of dollars to our allies for direct war purposes and for postwar relief and reconstruction. As a result, we emerged from the war a heavy creditor on international account. The position of the British, on the other hand, was considerably weakened by their sales of foreign securities and their borrowings abroad. Germany was also weakened somewhat by its wartime sales of securities abroad and by the reparations payments which the Allies demanded from it. Moreover, the relative international economic positions of countries were changed by the

burden of producing for war. The productive powers of some countries that had fought longest—such as Britain, Germany, and France—did not recover for some time; hence their ability to export was curtailed. On the other hand, some of the countries that were in the war for only a short time or that remained neutral—such as the United States and Sweden—emerged with their productive capacities virtually unimpaired and in a strong export position.

These shifts in the relative economic and financial position of the various countries affected the operation of gold standards in several ways. In the first place, they tended to concentrate gold holdings in the strong countries. For example, the strong creditor position of the United States, coupled with its ability to export and with the smaller rise in its price levels, tended to bring disproportionate amounts of gold here. Other countries had to take this into account in determining their price levels and the gold value of their money. In the second place, the increased economic and financial power of the United States, together with the decline of Britain, tended to shift the financial capital of the world from London to New York. American monetary policy was to become of unparalleled importance to other nations.

A third legacy of the war and early postwar period was an unprecedented degree of government intervention. This permeated all parts of the economic system, but was especially pronounced in the field of money and international finance. During the war, and in some countries for several years thereafter, treasuries and central banks controlled international financial transactions, influenced exchange rates in many ways, and managed the internal monetary systems more than ever before. In this way they built up organizations, procedures, and policies that were to persist and to result in a high degree of deliberate monetary management even after their nations' return to gold standards. This was especially true in the United States, where the Federal Reserve System was established only in 1914. In the field of money, perhaps more than elsewhere, the wartime experience accelerated the departure from laissez-faire policies.

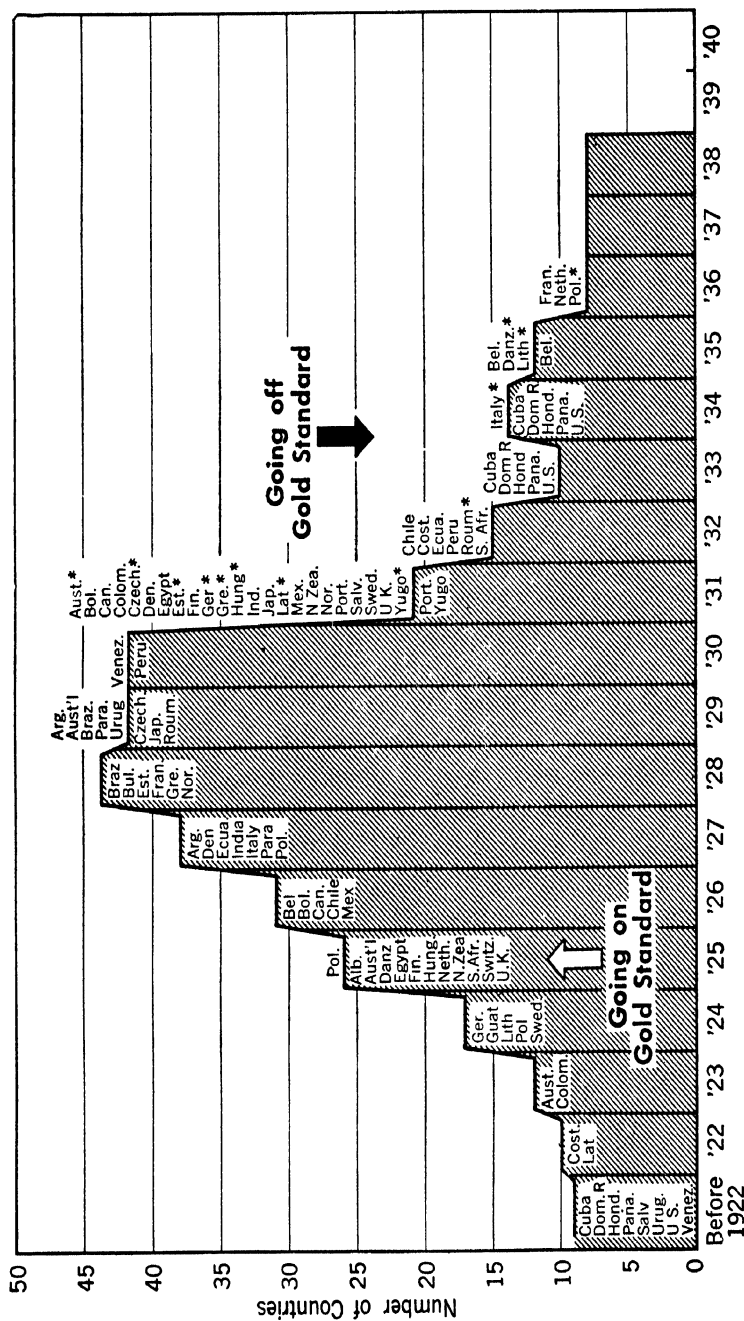
A fourth legacy of the war was the concentration of gold in

central banks and treasuries. Little gold coin remained in circulation, partly because it had been called in during the war and partly because the remainder had gone into hoards during the wartime inflation. This was to have lasting effects on monetary systems. In the first place, people had become accustomed to the use of non-gold money even more than they had before the war. And in the second place, the concentration of gold in central banks and treasuries gave these authorities more leeway in their monetary management.

In summary, then, the world faced the problem of re-establishing gold standards with the following important changes in conditions resulting from the war: (1) National price levels had risen by such differing amounts since 1914 that the early redeemability of all moneys in their prewar amounts of gold was out of the question. The gold value of money, or national price levels, or both, had to be altered drastically so as to give gold about the same purchasing power everywhere. (2) The relative financial and economic strength of the various countries had changed greatly. Most striking were the rise of the United States and the decline of Great Britain and Germany. These changes had to be recognized in determining the relative gold value of money and relative price levels if a gold standard was to operate satisfactorily. (3) Treasuries and central banks had acquired much experience in managing money internally and in controlling international financial transactions. (4) Monetary gold was largely concentrated in central banks and treasuries, and people had become fully accustomed to the use of non-gold money.

THE REESTABLISHMENT OF GOLD STANDARDS, 1919-1929

The United States restored the full redeemability of its money in gold in 1919, resuming its prewar gold-coin standard and giving the dollar its prewar gold content of 23.22 grains. It could do this because its prices had risen less than those of most other countries, it was able to export large amounts of goods, it was a creditor rather than a debtor on international



* Established exchange restrictions.

FIG. 4. Countries on the Gold Standard, 1921-1938. (Source: U. S. Treasury.)

account, and it had accumulated about a third of the world's monetary gold. Prices in this country continued to rise until 1920; but the drastic decline that began in the middle of that year and lasted into 1921 brought wholesale prices down to about 140 per cent of their level in 1913, and they fluctuated around that level until 1928. Thus, the purchasing power of gold here during the 1920's was about 70 per cent of its 1913 level. This was a fact that no country could ignore if it wished to be successful in returning to gold. Either by devaluing its money in terms of gold or by lowering its price levels, every country had to give gold a purchasing power within its boundaries that was in line with that in the United States.

Germany in 1924 was the next commercially important country to return to gold, although several small countries—mostly neutrals who had benefited financially from their war-time trade—preceded it. As noted earlier, the German inflation had reached astronomical heights, prices rising to many billion times their prewar levels. Rather than attempt to stabilize its old monetary unit, the mark, Germany adopted a new unit, the reichsmark, which was made equal to about 23.8 cents (about 5.5 grains of gold). One reichsmark was given for a trillion of the old paper marks. The success of Germany's stabilization was in part due to loans and other assistance from countries hoping for an early resumption of reparations payments.

Great Britain returned to gold in 1925, the pound being given its full prewar gold content. Many other countries with close political or economic ties soon followed suit. To insure its success in retaining gold, Britain borrowed \$100 million from J. P. Morgan and Co. and arranged a \$200-million line of credit with the Federal Reserve Bank of New York. In giving the pound sterling its prewar value in terms of gold, the British may have accomplished one of their major aims—to restore the international prestige of the pound and defend London's position as the world's financial center. Yet most economists now agree that the gold content of the pound should have been reduced in order to obviate the necessity of lowering British price levels so much. The wartime inflation had carried British cost elements to high levels from which

they could be brought down only slowly and painfully. As a result, the decline of prices which was required to raise the value of gold in England to the level prevailing in the United States decreased the profitability of production and brought about serious and prolonged unemployment. If the gold value of the pound had been reduced somewhat so that the pound would have been cheaper in the foreign-exchange market, Britain could have kept its position in export markets and have retained the required amount of gold without lowering its price levels. The case for some devaluation of the pound in terms of gold was strengthened by the fact that Britain's international economic position had been weakened to some extent by the decline in its income from foreign investments and the rise of competitive sellers in the export market.²

The deflationary pressure on Britain and on other countries that had placed too high a gold value on their money was intensified by the action taken by France in returning to gold in 1928. As noted earlier, inflation there continued until 1926. Rather than attempt a long and painful deflation, France decreased the gold content of the franc by about 80 per cent. This proved to be an excessive reduction, making France a favorable market in which to buy and tending to concentrate excessive amounts of gold there at the expense of other countries. Similar devaluations were made by Italy and Belgium.

In summary, gold again became an international standard between 1924 and 1928. In 1923 it was employed by only the United States and a few small nations; by the end of 1928 it had been readopted by most of the world's commercially important countries.

Characteristics of the New Gold Standards

The new monetary arrangements differed greatly from those in use at the outbreak of World War I. In the first place, gold-coin standards virtually disappeared everywhere except in the United States, the new systems being predominantly gold-bullion or gold-exchange standards, or combinations of

² For a more detailed discussion of this complex problem, see T. E. Gregory, *The Gold Standard and Its Future*, Methuen, London, 1934, 3d ed., pp. 39-59.

the two. In many cases the monetary authority had the option of redeeming money in gold bars or in foreign money which was stable in terms of gold. Let us look first at the gold-bullion standards. Typically, gold coins were no longer struck, existing gold coins had been called in, and other money was redeemable in gold bullion in certain minimum amounts. For example, the minimum amount of gold that would be sold by the monetary authority was about \$7585 in Great Britain, \$8428 in France, \$9114 in Belgium, \$8747 in Czechoslovakia, and \$3645 in Italy. The general effects of these bullion standards were to eliminate gold coin as a part of the circulating medium, to limit the convertibility of other types of money into gold, and to concentrate gold in the hands of the monetary authorities. This concentration not only increased the freedom of management of these authorities, as we have already seen, but also tended to "economize gold"—to increase the total amount of money relative to gold stocks, since a dollar's worth of gold in the reserves of a central bank could "support" several dollars' worth of circulating notes or checking deposits.

The increased use of various kinds of gold-exchange standards was to influence markedly the functioning of gold standards. For one thing, redemptions of domestic money only in foreign gold money (usually drafts on foreign banks) was a way of limiting the internal holding of gold. Furthermore, it led to greatly increased holdings of foreign money by central banks. For example, the Bank of France and other central banks could count as part of their "gold reserves" their holdings of claims on other gold standard money, such as dollars and pounds. They therefore accumulated sizable holdings of this sort. Such a practice had several consequences. It tended to "economize gold" by "pyramiding" credit. Suppose, for instance, that the Bank of France held in its reserves a \$500-million claim on American banks, on the basis of which it expanded France's money supply. To the Bank of France this claim was the equivalent of gold. But our Federal Reserve banks held the physical gold in their reserves and used it as a backing for money here. The result was a high pyramid; the United States expanded its various kinds of dollars on the

basis of its actual gold holdings, and France expanded its money on the basis of its claims against dollars. Such an arrangement was unquestionably convenient and economical of gold during untroubled periods. But it was also dangerous in the absence of thoroughgoing international cooperation. Our gold reserves could be quickly and seriously depleted by a decision of the Bank of France, or of any other central bank similarly situated, to demand payment of its claims in gold. Such action could exert strong deflationary pressure in the United States without any offsetting inflationary pressure in France, because the latter's total "gold" reserves would not be increased by its decision to hold gold rather than dollar claims. In fact, any widespread tendency to "de-pyramid" could exert strong deflationary pressures throughout the world, for effective "gold reserves" would come to include only gold itself, instead of both gold and the claims on it that were previously counted as a gold equivalent.

The widespread use of gold-exchange standards and the central banks' practice of holding large amounts of foreign money in their reserves increased the danger of international financial panics. The danger of a "run" was especially great in countries whose money was held in large amounts by the central banks of other countries. The British pound and the American dollar were very vulnerable because of their popularity with other monetary authorities. Any fear that one of these units would depreciate in terms of gold could lead to such widespread and immediate demands for gold by foreign creditors as to force the country off the gold standard. In fact, panic demands for gold played an important part in the dissolution of the gold standard after 1929.

In the second place, postwar gold standards were deliberately managed to a much greater extent than were those of the prewar period. The mere installation of the Federal Reserve System in the United States in 1914 materially changed the operation of the gold standard here; moreover, we had become the most powerful nation in the world in the field of money and finance. No country could afford to ignore variations in the purchasing power of gold here. The rise of mone-

tary management was not limited to this country; it was virtually a world-wide trend.

Though the introduction of a greater degree of management unquestionably changed the operation of gold standards, its results were not wholly beneficial. In general, nations failed to cooperate sufficiently to achieve their objectives—if they kept their objectives constantly in view. By restoring gold standards they had again stabilized exchange rates among their various moneys, but they were not willing to allow their internal price levels to adjust themselves in response to gold inflows and outflows. Complaints multiplied that nations were “violating the rules of the gold standard game.” Some countries, especially the United States and France, sometimes “neutralized” or “sterilized” gold inflows, preventing them from effecting increases in their money supplies, money incomes, and prices. Other nations complained that such action prevented these gold inflows from terminating themselves, as they would if they were allowed to exert their normal expansionist effects, and that it tended to prolong the drain of gold from other countries, thereby enhancing deflationary pressures there. On the other hand, countries losing gold were often reluctant to allow gold exports to decrease their money supplies, money incomes, and prices, with the result that the gold drain was prolonged. Monetary experts repeatedly warned that gold standards could not operate satisfactorily without thoroughgoing international cooperation in monetary management. They insisted that monetary authorities should (1) agree on general objectives and on rules to be followed to accomplish those objectives, and (2) conform their actual monetary policies to those agreed upon. They emphasized the interdependence of monetary systems and insisted that an international monetary standard required either international management or very close cooperation among national monetary authorities. Some central banks did cooperate, but the action was only sporadic and tended to break down during periods of crisis.

In the third place, postwar gold standards had to operate under general economic conditions that were much less favor-

able than those immediately preceding 1914. Higher tariffs and many other ingenious devices were used to impede world trade, thereby interfering with appropriate adjustments of imports and exports. Heavy war debt and reparations payments, together with the unwillingness of the United States and other creditors to accept goods in payment, tended toward excessive concentrations of gold in a few countries, especially in the United States and France. Sporadic international lending, with funds flowing freely at some times and dwindling to a trickle at others, led to rapidly shifting balances of international payments. And the vivid memory of war and postwar monetary disturbances inclined people to become panicky whenever the gold value of a currency was threatened. These and many other conditions were unfavorable to a smooth functioning of gold standards, especially of systems that were not wisely managed.

THE BREAKDOWN OF GOLD STANDARDS

In 1929 the world began to slide into the great depression which was to bring not only wholesale departures from gold standards but also rapid price declines, ruinous reductions of both money and real national incomes, widespread bankruptcies, long lines of unemployed, and a general social and economic discontent that played an essential role in precipitating World War II. We are interested here only in the accompanying decline of gold standards.

A few countries abandoned gold in 1929 and 1930, and most of the others left it in 1931. The United States and France were the only major nations remaining on it at the beginning of 1933, and we renounced it during that year. In less than a decade gold had again lost its position as an international monetary standard. Many countries renounced it in a straightforward way, refusing to redeem their money in it, though they still stood ready to buy it at the old price. Others tried to maintain the fiction of a gold standard while destroying its substance. For example, Germany insisted that it was on a gold standard even though it would not sell gold at a fixed

price for internal use, would sell gold for export only for very limited purposes and in very limited amounts, and would allow funds to be exported or imported in any form only under government license. Exchange control—that is, strict government licensing and control of international payments—became so widespread that it threatened to throttle international transactions. Such a system can hardly be called a gold standard.

Why did the gold standard break down so completely? A full explanation would be too lengthy to be included here, but we can point out some of the principal factors in its demise. These are: (1) the deterioration of world trade, (2) the virtual cessation of international long-term lending, and (3) an international panic in which great volumes of short-term credits were summarily withdrawn from international financial centers. All these developments were closely related to the deepening depression, both as aggravating causes and as effects.

As the depression deepened and national incomes declined, the demand for goods and services in world markets fell. Unemployed people and economic systems running in low gear had to reduce their imports of both finished goods and raw materials. Especially hard hit were the countries exporting raw materials whose prices dropped abruptly. With the great drop in their receipts from exports, the ability of these countries to maintain enough gold to insure convertibility of their money was weakened. Their plight was worsened by the second factor, the virtual cessation of international lending.

Many countries had been assisted in restoring the convertibility of their money in gold, and thereafter in maintaining this convertibility, by large international loans from abroad. The United States alone lent abroad, in net amounts, over \$700 million in 1926, over \$1000 million in 1927, and nearly \$850 million in 1928. Beginning in 1929, however, international lending began to dry up. The tightness of credit here, associated with stock market speculation and the restrictive credit policies of the Federal Reserve, lowered our net long-term lending in 1929 to less than \$300 million. International lending declined still more as the depression deepened, as national incomes fell, and as prospects of repayment

darkened. Repayments to the United States actually exceeded our new long-term foreign lending by nearly \$500 million during 1931-32. This country, and some other international lenders, were likened to a shortsighted and capricious loan shark who dispenses loans with a generous hand during untroubled periods and then ruthlessly demands repayment regardless of the consequences as soon as doubts begin to cloud the future. In any case, the virtual cessation of international lending and the demand for repayment greatly weakened the gold position of many countries that had been borrowing heavily; and this loss of loan receipts from abroad and the necessity of repaying came at the very time that receipts from exports of goods and services were dwindling. Sizable drains on gold were an inevitable result.

These two factors alone—the decreased demand for exports and the cessation of long-term lending—were enough to force some countries to terminate the redeemability of their money in gold, and they weakened the gold position of many others. But the wholesale departures from gold in 1931 were precipitated by an international financial panic in which frightened foreign creditors demanded immediate repayment of short-term debts in gold. These international short-term debts (or credits) were large in amount; in some countries they were several times as large as gold stocks. They took many forms. Some of them were in the form of foreign deposits with central or commercial banks. Others were in the form of short-term foreign loans in the securities markets and short-term commercial debts owed to foreigners. But they had one common characteristic: they were all payable on demand or on short notice. The owners of these international short-term credits were of two general types. One was the central banks and other monetary authorities who maintained large deposits and other short-term credits in foreign financial centers to implement their gold-exchange standards. The other included commercial banks, corporations, and individuals who had accumulated deposits or other short-term credits abroad to facilitate their business operations or to earn interest. Neither group was willing to suffer a loss on its foreign credits; all that was needed to start a panicky demand for immediate repayment

was a fear that these credits would depreciate in terms of gold. Their psychology was that of the old lady who told her banker, "I just came in to see if I could get cash for my deposits here. If I can get it, I don't want it; but if I can't get it, I want it immediately."

The international panic began in May, 1931, with the failure of the Credit-Anstalt, the largest bank in Austria. This raised doubts as to the ability of any Austrian bank to meet its obligations, and not only foreigners but many Austrians as well withdrew large amounts of funds from the country. So great was the flood of withdrawals that it exhausted large loans from the Bank of England and the Bank for International Settlements as well as Austrian holdings of gold and foreign money; consequently Austria was forced to terminate the convertibility of its money in gold. Many creditors found their remaining credits frozen and depreciating in terms of gold.

The panic was now on. Fearful creditors, remembering losses in Austria, began to withdraw their credits from Berlin, and frightened Germans joined the run. Within a few weeks and despite sizable loans from the Bank of England, the Bank of France, the Bank for International Settlements, and the Federal Reserve Bank of New York, Germany suspended gold payments in July, 1931, and placed strict limitations on international payments of all sorts. Millions of dollars' worth of short-term foreign credits were frozen in Germany.

Reinforced, the panic swept on to London, from where credits were rapidly withdrawn. An increase in its discount rate by the Bank of England, which was supposed to attract and retain foreign funds, seemed rather to publicize the fact that England was in financial difficulties, and thereby hastened withdrawals. Even a \$250-million joint credit from the Federal Reserve Bank of New York and the Bank of France was insufficient to stop the run or to cover withdrawals, which amounted to \$975 million from July to late September. England departed from gold on September 21, 1931. The retreat from gold now became a rout. By April of 1932, gold standards had become inoperative in the following countries:³

³ H. V. Hodson, *Slump and Recovery, 1929-1937*, Oxford, London, 1938, p. 92.

Argentina	Estonia	Nicaragua
Australia	Finland	Norway
Austria	Germany	Paraguay
Bolivia	Greece	Portugal
Brazil	Honduras	Rhodesia
Bulgaria	Hungary	Russia
Canada	India	Salvador
Chile	Iraq	Spain
Colombia	Irish Free State	Sweden
Costa Rica	Japan	Turkey
Czechoslovakia	Jugoslavia	United Kingdom and dependencies
Denmark	Latvia	Uruguay
Ecuador	Newfoundland	Venezuela
Egypt	New Zealand	

In the meantime the position of the United States was becoming daily more precarious because of both internal and external events. The depression was deepening; millions were unemployed, millions more were working only part time, the national income had fallen far below 1929 levels, prices were dropping, bankruptcies were widespread, and the ability of many other creditors to meet their obligations was questionable. Our banks, never strong in their ability to withstand depression, were failing in large numbers. More than 5000 commercial banks, about 20 per cent of all the banks in the country, failed in the years 1930–31–32. Depositors were becoming increasingly doubtful of the ability of banks to redeem their deposits in coin or paper money and were withdrawing large sums for hoarding. Up to the end of 1932 there seemed to be little fear that token coins or paper money would depreciate in terms of gold; early in 1933, however, the demand for gold for hoarding purposes increased.

Closely related to unfavorable internal conditions, both reinforced by them and reinforcing them, was the withdrawal of short-term credits by foreigners who feared that the United States would join the panicky abandonment of gold. The net outflow of short-term funds from this country amounted to \$479 million in 1930, \$637 million in 1931 and \$446 million in 1932. The outflow accelerated in the early part of 1933. But even at the end of 1932 our gold position seemed very strong. Both internal hoarding and the export of short-term credits had subsided somewhat, and the country held monetary gold stocks amounting to \$4226 million, which was about

40 per cent of the world's total. But this was only the lull before the storm. The storm broke in Detroit with the failure of the Union Guardian Trust Company, which was one of the largest banks in Michigan and was also closely connected with many other banks. So great was the blow to public confidence in the ability of banks to redeem their deposits in cash and so panicky were withdrawals that the governor of Michigan on February 14, 1933, declared an eight-day bank holiday. The panic now spread to other states. By March 4 every state in the Union had declared bank holidays and bank deposits were no longer redeemable in cash.⁴ President Roosevelt's decree of a national four-day bank holiday beginning on March 6 merely recognized the existing situation.

The collapse of the banking system was accompanied by developments that threatened the gold position of the Federal Reserve banks and the Treasury. The domestic drain of cash from banks amounted to nearly a billion dollars, and there was some tendency to demand gold coin and gold certificates for domestic hoarding. At the same time foreigners were rapidly withdrawing short-term credits, so that our monetary system lost \$270 million of gold during February and March. How much more would have been lost if the banks had been redeeming their deposits freely can never be known.

It was under these conditions that President Roosevelt on March 6, 1933, placed an embargo on gold exports, thereby abandoning the gold standard.

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⁴ Lacking constitutional power to relieve banks of their obligation to redeem deposits in legal-tender coin or paper money, some of the governors used amusing methods. For example, the governor of Kentucky declared "Days of Thanksgiving." The reason for his thankfulness is still unclear.

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Monetary Standards, 1933-1942

WHEN THE UNITED STATES ABANDONED GOLD ON MARCH 6, 1933, it was generally expected that the departure would be no more than temporary and that the form of the gold standard when restored would be practically unchanged. The gold standard could probably have been reestablished with no more than minor changes if the government had been willing to make this the primary objective of its monetary policy. We still held, even at the end of the panic, about a third of the world's monetary gold, and foreign credits here had been reduced to a low level. Domestic gold hoarding could probably have been minimized by actions restoring confidence in the banks and by conservative and tight monetary policies. In the end, however, it was decided that other monetary objectives were more important than maintaining the gold value of the dollar at its old level. We therefore remained off the gold standard during the remainder of 1933 and adopted a new and drastically changed gold standard in January, 1934.

BACKGROUNDS OF THE NEW GOLD STANDARD

Monetary policies during 1933 and the new gold standard that was adopted in 1934 can be understood only in the light of economic developments since 1929. The period was one of devastating deflation and widespread economic distress. By early 1933 the nation's money supply had fallen nearly 25

per cent below 1929 levels; the remaining money was being spent only slowly and cautiously; the national income had fallen by more than 50 per cent in terms of money, and very substantially in real terms; wholesale prices had fallen more than 30 per cent; upward of 15,000,000 persons were wholly unemployed and others were working only part time; reflecting the decline of spendings for output, thousands of corporations were incurring heavy losses and many were unable to meet even the interest on their debts; farm mortgages were being foreclosed in large numbers and others were in default as to both interest and principal; defaults on urban real estate mortgages were widespread; and the solvency of a large part of our financial institutions was in serious doubt. President Roosevelt decided that the primary objective of our monetary policy, as well as of our fiscal and general economic policy, must be to halt the deflationary spiral and to bring about an expansion of the money supply, money spendings, national income, employment, and prices. In his fourth Fireside Chat he emphasized his determination to bring about "reflation"—an increase of price levels.

Ever since last March the definite policy of the Government has been to restore commodity price levels. The object has been the attainment of such a level as will enable agriculture and industry once more to give work to the unemployed. It has been to make possible the payment of public and private debts more nearly at the price level at which they were incurred. It has been gradually to restore a balance in the price structure so that farmers may exchange their products for the products of industry on a fairer exchange basis. It has been and is also the purpose to prevent prices from rising beyond the point necessary to attain these ends.¹

He also stated emphatically that the prime objective of our monetary policy after prices had been increased to the desired level should be stabilization of the purchasing power of money.

Old fetishes of so-called international bankers are being replaced by efforts to plan national currencies with the objective of giving to those currencies a continuing purchasing power which does not greatly

¹ Radio address to the nation, October 22, 1933. Reproduced in *The Public Papers and Addresses of Franklin D. Roosevelt*, Random House, New York, 1938, vol. ii, p. 425.

vary in terms of the commodities and needs of modern civilization. Let me be frank in saying that the United States seeks the kind of dollar which a generation hence will have the same purchasing and debt-paying power as the dollar value we hope to attain in the near future. That objective means more to the good of other Nations than a fixed ratio for a month or two in terms of the pound or franc.²

It was feared that the readoption of gold with the dollar at its former gold value would impede the restoration of higher price levels in two ways. In the first place, restoration of the full convertibility of dollars into gold might lead to such extensive gold exports and internal gold hoarding as to reduce seriously the gold reserves of the Federal Reserve banks and force them to follow restrictive credit policies. There was some basis for this fear. Public confidence in the banks was still fragile, so that a resumption of internal hoarding of gold as well as of coin and currency in general was a real possibility. Moreover, the government's vigorous policy of deflation included marked increases of government spending and additional money issues which were considered radical by many and which could easily have raised doubts as to the government's ability to redeem its money in gold. In achieving its primary objective of raising price levels, the New Deal administration was not willing to be hampered by any obligation to convert dollars into gold.

In the second place, it was feared that restoration of the former gold value of the dollar and of free gold exports would prevent what was considered a necessary reduction in the price of dollars in the foreign-exchange market. This point can be understood only by reference to the existing situation in those markets. It will be remembered that practically all the major countries except France had been off the gold standard for a year or more. By February, 1933, their money had fallen markedly in value relative to both gold and the dollar; or, to put the same thing another way, the dollar had risen markedly in terms of foreign money. This is shown by the examples in Table 10.

This decline in the price of foreign money (that is, the rise

² Wireless to the London Economic Conference, July 3, 1933. See *ibid.*, p. 265.

in the price of dollars in terms of foreign money) tended to accentuate deflation here by lowering the prices of both our exports and our imports. This was true because the new exchange rates placed such a high value on the dollar relative to foreign monetary units. Let us look first at the effect on export prices, using exchange rates between dollars and pounds as an example. Even as late as August, 1931, a pound would buy about 4.86 of our dollars, which could then be used

TABLE 10. DECLINE OF SELECTED FOREIGN EXCHANGE RATES,
1929-FEBRUARY, 1933³

Money	Average Price in Dollars in 1929	Average Price in Dollars in February, 1933	Percentage De- cline of Money in Terms of Dollars
British pound	\$4.857	\$3.422	30
Canadian dollar	0.992	0.835	16
Argentine peso	0.951	0.586	38
Brazilian milreis	0.118	0.076	35
Indian rupee	0.362	0.258	29
Chilean peso	0.121	0.060	50
Danish krone	0.267	0.153	43
Norwegian krone	0.267	0.175	34
Swedish krona	0.268	0.183	32
Portuguese escudo	0.045	0.031	31
Australian pound	4.81	2.72	45

to buy our goods. But by February, 1933, the pound had fallen to \$3.42; the price of dollars in terms of pounds had risen by more than 40 per cent. This increase in the cost of each dollar meant that a foreigner, computing cost in terms of his own money, would find it more expensive to buy here unless our prices fell enough to offset the increased cost of dollars in the foreign-exchange market. For example, before September, 1931, an Englishman could for £1 buy an article in the United States that was selling for \$4.86. But after the pound had depreciated to \$3.42 the article, if it still sold in the United States for \$4.86, would cost him one and four-tenths pounds. He would therefore tend to decrease his de-

³ This table deliberately omits money which was inconvertible in terms of gold and which was artificially pegged, at least in official markets, at high prices. Most of these moneys were depreciated in unofficial or black markets.

mand for American goods and buy either at home or from other countries whose money had not risen, unless the price of the American product fell to about \$3.42. This overvaluation of the dollar in the exchange market was a powerful factor in depressing the prices of our export goods, especially of such articles as cotton and wheat which had to compete with the products of countries with depreciated currencies.

The increased value of the dollar in the exchange market also tended to reduce the prices of American products that competed with imports; for declines in the prices of foreign money, unaccompanied by offsetting price increases abroad, decreased the cost of foreign products to us. For instance, before September, 1931, an article selling for £1 in England cost an American importer about \$4.86. But the same article would cost him only \$3.42 in February, 1933, if it could still be bought in England for £1. And English prices rose only slightly during this period.

Part of the New Deal program for raising domestic prices included lowering the value of the dollar in terms of foreign money. It was believed that cheapening the dollar in the foreign-exchange market would increase the foreign demand for our exports and permit our export prices to rise in terms of dollars. Moreover, an increase in the price of foreign money would also increase the dollar cost of imported goods, thereby permitting increases in the prices of American products that competed with imports. We shall see later that competitive attempts by many countries to raise their domestic price levels by lowering the value of their money in the exchange market can have seriously disturbing effects on monetary systems and international transactions. It is probably true, however, that the American policy of lowering the price of the dollar in terms of foreign money did aid in raising our domestic prices.

These, then, were the reasons for the New Deal's unwillingness to restore the former gold standard in 1933. Not necessity but a desire to be unhampered by it in achieving higher prices was the motive for refusing to restore it. The following sections will deal only with strictly monetary measures employed in 1933 to facilitate expansion. But it must not be forgotten that these were supplemented by ambitious programs to raise

agricultural prices, to provide relief for the unemployed, to expand public works, to decrease the length of the work week and raise wages, to end "unfair competition" in industry, and to bail out debtors and credit institutions.

MONETARY POLICY IN 1933

With all the banks closed, Congress on March 9 gave the President broad executive powers to regulate the banks and the conditions of their reopening and to control the holding and trading of gold. A majority of the banks were reopened soon thereafter, with confidence restored to such an extent that large amounts of cash were redeposited with them. A number of executive orders issued in March and April effectually ended the convertibility of dollars into gold. By the end of April virtually all gold coins, gold bullion, and gold certificates, except rare coins and reasonable amounts of gold for use in industry or the arts, were required to be turned in to the government. The government would sell gold only for "legitimate" industrial or artistic uses. It would not supply the metal for export or even to meet maturing debts specifically requiring payment in gold.

In the meantime many groups were demanding monetary expansion to end the deflation, and each seemed to have its own method for accomplishing this purpose.⁴ Some of the more conservative urged a liberal expansion of Federal Reserve credit. Vocal groups in the South and West, remembering the battle cries of the late nineteenth century, demanded remonetization of silver at the old 16-to-1 ratio. Others, looking at the current use of "scrip," "prosperity checks," "corn money," and "cotton money" in a number of states, demanded national issues of scrip. Others wanted large issues of greenbacks of the Civil War type. And still others demanded an increase in the price of gold. The legislation enacted in May, 1933, showed the influence of all these groups and gave the President unprecedented powers to expand the

⁴ This paragraph leans heavily on G. Griffith Johnson, Jr., *The Treasury and Monetary Policy, 1933-1938*, Harvard University Press, Cambridge, 1939, pp. 10-11.

money supply in many ways.⁵ The President himself, or the Secretary of the Treasury acting under presidential direction, was empowered:

1. To enter into agreements with the Federal Reserve Board and the Federal Reserve banks for the latter to buy directly from the Treasury, and to hold, up to \$3 billion of federal government securities in addition to those already in their portfolios. The effect of such purchases, as we shall see later, would be a corresponding increase of bank reserves.
2. To issue United States notes (greenbacks) in amounts not to exceed \$3 billion. These were to be legal tender for all debts.
3. To fix the gold value of the dollar by proclamation, with the limitation that it should not be reduced more than 50 per cent.
4. To fix the silver value of the dollar and to provide for the unlimited coinage of both gold and silver at fixed ratios. The President could reestablish a bimetallic standard in this country alone or he could enter into agreements with other countries to establish international bimetallism.
5. To accept silver at a price not to exceed 50 cents an ounce in payment of debts from foreign governments, the total accepted in this form not to exceed \$200 million. Any silver acquired in this way was to be coined into silver dollars and held as backing for additional silver certificates.

If the President had used all these powers vigorously, the combined effects could have been highly expansionist. His actual use of them was quite limited, however, as compared with their potentialities; in fact, there is evidence that he prevailed upon Congress to pass this broad permissive legislation in order to avoid a highly expansionist mandatory law. Federal Reserve purchases of additional government securities were far below the amount permitted (they amounted to about \$600 million). No additional greenbacks were issued.

⁵ This legislation was included under Title III of the Farm Relief Act approved by the President on May 12, 1933.

Only limited amounts of silver were acquired in 1933 in payment of war debts or by Treasury purchase. But in September the President began to use vigorously his power to increase the price of gold, that is, to reduce the gold value of the dollar. From September 8 to October 24, the Secretary of the Treasury stood ready to receive newly mined domestic gold on consignment at a price equal to the best price available in free gold markets abroad. On October 24 this price was \$29.80 an ounce, or 44 per cent above the old mint price. Dissatisfied with the extent of the rise in gold prices, the President ordered the Reconstruction Finance Corporation to purchase newly mined domestic gold at increasing prices. These purchases began on October 25. Purchase prices were as follows, to cite only month-end figures:⁶

Date	RFC Purchase Price per Fine Ounce	Percentage of Old Mint Price (\$20.67)
October 31	\$32.12	155
November 29	33.93	164
December 30	34.06	165
January 31	34.45	167

Thus, by the end of January, 1934, the price of newly mined domestic gold had been raised 67 per cent above the old mint price; the gold value of the dollar had been reduced about 40 per cent.

It is clear that the gold-buying program to raise the price of gold was undertaken as part of the general program to raise commodity prices. This was emphasized in the President's October 22 radio address just before the gold-buying program was begun.⁷ What is not so clear, however, is the process by which the enhanced price of gold was expected to increase the prices of other goods and services. Some critics have accused the President of accepting fully the rather naïve theories held by one of his monetary advisers, Professor George F. Warren, regarding the relationship between gold and price levels. Professor Warren, pointing to long-run correlations between

⁶ See Secretary of the Treasury, *Annual Report, 1934*, p. 205.

⁷ This speech is reproduced in *The Public Papers and Addresses of Franklin D. Roosevelt*, vol. ii, pp. 420-427.

the monetary value of gold stocks and the height of price levels, argued that an increase in gold prices would raise domestic price levels in a short period of time and almost in proportion to the increase in the price of gold. With many qualifications, there is some tendency *in the long run* for the monetary value of gold stocks and price levels to move in a parallel manner.⁸ Even in the short run an increase in the price of gold can be used to increase the monetary value of gold stocks and the size of bank reserves, thereby *permitting* an expansion of the money supply. But there is no assurance that the total money supply, being largely composed of bank deposits, will rise proportionally in the short run, or that an increase of the money supply, even if achieved, will increase spendings proportionally, or even that increased spendings will effect proportional changes in price levels. The extent to which the President was influenced by Professor Warren's theory is not known.

There is evidence, however, that a stronger motive for raising the dollar price of gold was the one mentioned earlier—the desire to lower the value of the dollar in terms of foreign money, thereby increasing the foreign demand for our exports, especially for farm products, and raising the prices of these goods in terms of dollars. This is indicated in the President's notes for his radio address on October 22, 1933.

At this point it may be said that the depreciation of foreign currencies, prior to 1933, had had the effect of making the dollar more expensive in terms of those foreign currencies. Thus it took more pounds, more francs or more marks to buy a dollar than it had formerly and, since the prices of our export products are determined in terms of dollars, it took more pounds, francs and marks to buy our export products. The effect of this had been to contribute to the serious decrease in our foreign trade, not because our own prices, in terms of dollars, had risen, nor because our products were of an inferior quality, nor because we did not have sufficient products to export. But because, in terms of foreign currencies, our products had become so much more expensive, we were not able to obtain our fair share of the

⁸ See chap. 29.

world's trade. It was, therefore, necessary to take measures which would result in bringing the dollar back to the position where a fair amount of foreign currency could again buy our products; that is, to make the dollar cheaper in terms of pounds, francs or marks. This was the process which commenced in March, 1933, and which had to be continued until that level was reached. It was not desirable to make this level too low, because then our own importers would find it difficult to buy foreign merchandise. But it was clear that the level had been too high, and we wanted to find the appropriate level.⁹

TABLE 11. DOLLAR PRICES OF SELECTED FOREIGN MONEY,
FEBRUARY AND SEPTEMBER, 1933, AND JANUARY, 1934

Money	Price in February, 1933	Price in September, 1933	Price in January, 1934	Percentage Increase, February, 1933, to January, 1934
English pound	\$3.422	\$4.665	\$5.032	47
French franc	0.039	0.058	0.065	49
Australian pound	2.722	3.713	4.088	48
Canadian dollar	0.835	0.965	0.992	19

As is shown in Table 11, the value of the dollar in terms of foreign money had already been substantially reduced before the start of the gold-buying program, and it fell still further as the program was carried through. It is impossible to isolate the effects of the dollar's decline in terms of foreign money upon the prices of our exports, especially our exports of farm products. Our export prices did rise, and the rise was unquestionably assisted by the increase in foreign-exchange rates. But two facts must be kept in mind: (1) Many other factors, especially crop reduction and government purchase programs, were also tending to raise farm prices, and (2) the decline of the dollar in terms of foreign money could raise our export prices proportionally only if these prices remained constant in terms of foreign money. And our actions tended to lower prices abroad somewhat, the extent varying from case to case.

⁹ *The Public Papers and Addresses of Franklin D. Roosevelt*, vol. ii, p. 428.

THE REESTABLISHMENT OF A GOLD STANDARD, JANUARY, 1934

From early March, 1933, until the end of January, 1934, the United States was unquestionably off the gold standard. Not only did the government refuse to redeem its money in gold either for domestic holding or for export, but it required the turning in of virtually all gold coin, gold bullion, and gold certificates except "reasonable amounts" for industrial or artistic uses. The country returned to gold on January 30, 1934, but the new gold standard differed greatly from that prevailing before March, 1933. The principal provisions of the Gold Reserve Act of 1934 were as follows:

1. The President was authorized to fix the gold value of the dollar, with the limitation that it might not be fixed at less than 50 per cent or more than 60 per cent of the old amount. Thus, the President at his discretion could define the dollar as not more than 13.93 grains and not less than 11.61 grains; the price of gold could not be set below \$34.45 (the level reached by January under the gold-buying program) or above \$41.34 an ounce.

Acting under this power the President on January 31, 1934, fixed the price of gold at \$35 an ounce, though he expressly reserved the right to alter the price as the country's interest might require.¹⁰ Actually, however, the price has remained unchanged at this level. The gold content of the new dollar is 13.71 grains, representing a reduction of 40.94 per cent. Revaluation of the nation's monetary gold stock at \$35 rather than \$20.67 an ounce yielded the Treasury a handsome profit. The gain amounted to \$14.33 on each of nearly 196 million ounces, or \$2805 million.

2. All gold was "nationalized." Banks and individuals had already been required to turn in all gold and gold certificates, except for certain permitted amounts of gold, to the government or the Federal Reserve banks. The law pro-

¹⁰ The buying price is actually $\frac{1}{4}$ of 1 per cent below \$35 and the selling price $\frac{1}{4}$ of 1 per cent above it.

vides that title to gold in the Federal Reserve banks shall be vested in the government, and that any profits or losses accruing from increases or decreases in the price of gold shall be for government account. The Federal Reserve may, however, hold gold certificates. No currency of the United States is to be redeemed in gold, except that gold certificates held by the Federal Reserve banks may be redeemed in gold to the extent that the Secretary of the Treasury judges necessary.

3. No more gold is to be coined (unless for foreign use) and existing coins are to be formed into bars.
4. No one may hold, transport, import, export, or otherwise deal in gold except under regulations to be prescribed by the Secretary of the Treasury with the approval of the President.
5. A \$2-billion stabilization fund was set up, with part of the profits from the gold revaluation. As manager of this fund, the Secretary of the Treasury has wide powers. He can buy or sell gold at home or abroad in such amounts and at such prices as he deems most advantageous to the public interest, buy and sell government securities, and do almost anything else convenient to the achievement of his monetary objectives. We shall see later that such stabilization funds can be powerful instruments for controlling internal credit, changing the price of gold, and regulating the prices of money in the exchange market.

A comparison of the new standard with the old shows great differences. (1) The gold value of the new dollar is only 59.06 per cent as great as that of the old. (2) The gold-coin standard was abolished. Even gold bullion cannot be secured for any internal use except in industry or the arts, and it is sold for export only under the conditions laid down by the Secretary of the Treasury. The reasoning behind this change was given in the President's message to Congress on January 15, 1934.

. . . the free circulation of gold coins is unnecessary, leads to hoarding, and tends to a possible weakening of national financial structures in times of emergency. The practice of transferring gold from one individual to another or from the Government to an individual within a Nation is not only unnecessary, but in every way undesirable. The

transfer of gold in bulk is essential only for the payment of international trade balances.

Therefore it is a prudent step to vest in the Government of a Nation the title to and possession of all monetary gold within its boundaries and to keep that gold in the form of bullion rather than in coin. . . .

The title to all gold being in the Government, the total stock will serve as a permanent and fixed metallic reserve which will change in amount only so far as necessary for the settlement of international balances or as may be required by a future agreement among the nations of the world for a redistribution of the world stock of monetary gold.¹¹

(3) The executive branch of the government has unprecedented amounts of discretion in managing money. It can vary the gold content of the dollar; regulate dealings in gold even to the point of prohibiting them; buy and sell gold, foreign exchange, government securities, and other items through the stabilization fund; and in many other ways manage the monetary system for good or ill. More than ever before, our gold standard is a managed standard.

Abrogation of "Gold Clauses"

The government's policy of devaluing the dollar in terms of gold raised serious problems in debtor-creditor relationships because of the wide use of "gold clauses" in debt contracts. These clauses, in effect, called for payment of debts in a fixed amount of gold. For example, a corporation bond or a real-estate mortgage issued in 1925 would promise payment of "one thousand dollars gold coin of the United States of the present standard of weight and fineness." United States Liberty Bonds issued in 1917 read: "The principal and interest hereof are payable in United States gold coin of the present standard of value." Gold certificates also carried what was generally construed as a promise to pay the bearer a fixed amount of gold. If these gold clauses had been enforced despite the increase in the price of gold, debtors would have been virtually ruined, for they would have had to pay \$1694 to retire each \$1000 debt that included a gold clause—this

¹¹ *The Public Papers and Addresses of Franklin D. Roosevelt*, vol. iii, pp. 41-42.

despite the fact that the purchasing power of the "new" dollar for goods and services was higher than that of the "old" dollar when most of the debts were incurred. In fact, the enforcement of all these gold clauses would have injured individual and corporate debtors, increased the burden of the federal debt, and given windfall profits to the holders of gold certificates to such an extent that the government would have had to reduce the price of gold to its old level.

It was to avoid these burdens on debtors and at the same time maintain the government's freedom to manage the gold value of the dollar that Congress passed Public Resolution No. 10, which was approved by the President on June 5, 1933. This resolution voided gold clauses in future contracts, declaring them to be against the public policy, and provided that all obligations, whether or not they contained gold clauses, could be discharged by payment, dollar for dollar, in any coin or currency which was legal tender at the time of payment. All coins and currencies of the United States were declared to be legal tender. The constitutionality of this resolution was immediately challenged by creditors, but it was in effect upheld by the Supreme Court in the famous gold clause cases.¹²

The justice of this act and of the Supreme Court decisions upholding it has been the subject of white-hot controversy. Some have argued that it constituted a major defrauding of creditors who held claims containing gold clauses, for they received only 59.06 per cent as much gold as their contracts called for. But others see no such injustice. They point out that these claims were paid on a dollar-for-dollar basis and that the new dollars had at least as much purchasing power as those originally lent. Moreover, they believe that the government, in exercising its constitutional power to "coin money and regulate the value thereof," must retain the right to change the gold value of the dollar, and that the existence of gold clauses in contracts is an unjustifiable deterrent to the use of this power.

¹² See *Norman vs. B.&O. R.R. Co.*, 294 U. S. 240, 55 S.Ct. 432, 79 L.Ed. 885 (1935); *Perry vs. U. S.*, 294 U. S. 330, 55 S.Ct. 432, 79 L.Ed. 912 (1935); *Nortz vs. U. S.*, 294 U. S. 317, 55 S.Ct. 428, 79 L.Ed. 907 (1935).

Do Something for Silver—Again

In view of our monetary and political history it was only to be expected that economic depression and monetary disturbances would again bring the demand that we “do something for silver.” Conditions and alliances were similar to those of the late nineteenth century. Silver prices fell to only 24.6 cents an ounce in December, 1932, a level that was hardly to the taste of silver-mining interests and their spokesmen in Congress. Moreover, debtors suffering because of the low prices of goods and services in general were willing to endorse monetary expansions of any sort, especially a “sound” expansion of “hard money.” These two groups therefore joined forces again to secure a greater use of silver in monetary systems. They even brought forth a new argument that Bryan had not used: we should raise the price of silver to help “the teeming millions in the Orient.” They pointed out that as the price of silver fell, the prices of oriental silver money declined in terms of gold money, thereby—they argued erroneously—decreasing the purchasing power of oriental countries in the world market. Their remedy was as simple as it was fallacious: raise the price of silver, thereby raising the prices of oriental silver money in the exchange market and also raising the purchasing power of the Orient in world markets.

It was in response to pressure from these groups that many steps were taken in behalf of silver. We have already seen that the legislation of May, 1933, gave the President broad powers to accept silver in payment of war debts, to fix the silver value of the dollar, to purchase the metal, to establish bimetallism, and to enter into international agreements as to silver. Only limited amounts of silver were received in payment of war debts.¹³ In July, 1933, Senator Pittman, an ardent silverite and a delegate to the London Economic Conference, persuaded a number of silver-using and silver-producing coun-

¹³ For an excellent brief discussion of our silver policy, see G. Griffith Johnson, *The Treasury and Monetary Policy, 1933-1938*, Harvard University Press, Cambridge, 1939, pp. 161-200.

tries to agree to measures raising the price of silver. The big holders of the metal—China, India, and Spain—agreed not to dispose of it beyond certain limits (but these limits were generous). The producing countries, on the other hand, agreed to absorb from their domestic production 35 million ounces a year for four years. The joker was soon revealed. The United States had agreed to buy for monetary use 24,400,000 ounces of silver each year, though its annual production was only about 24,700,000 ounces; we had in effect agreed to monetize all our own production of the metal. But other countries had agreed to buy only 11,600,000 ounces each year, despite the fact that their annual production amounted to 103,000,000 ounces.¹⁴ Virtually the entire burden of doing something for silver was assumed by this country. The President ratified the London Silver Agreement on December 21, 1933, and ordered the purchase of the entire domestic production of silver at 64.64 cents an ounce. This price was about 50 per cent above that previously prevailing.

Proponents of silver, still dissatisfied, pushed through the Silver Purchase Act in June, 1934. The objective of this law was stated in its Section 2:

It is hereby declared to be the policy of the United States that the proportion of silver to gold in the monetary stocks of the United States should be increased, with the ultimate objective of having and maintaining, one-fourth of the monetary value of such stocks in silver.

The Secretary of the Treasury was directed to purchase silver at home or abroad until the monetary value of silver stocks should be equal to one-third the value of monetary gold stocks, or until the market price of silver rose to the level of its monetary value (\$1.29 an ounce). To prevent excessive profits to speculators it was provided that no more than 50 cents an ounce should be paid for silver situated in the United States on May 1, 1934. In August the President implemented this provision by nationalizing all silver at this price.

Though the Secretary of the Treasury was directed to purchase silver until its monetary value was equal to one-fourth

¹⁴ *Ibid.*, p. 172.

the total of gold and silver, the rate of purchase was not stipulated. He therefore followed a policy of buying as slowly as political conditions permitted. Nevertheless, silver purchases were very large. From the middle of 1933 until our entrance into World War II the Treasury bought more than 2500 million ounces of silver, of which less than 450 million ounces were newly mined in this country. Most of the remainder came from abroad. The price paid for newly mined domestic silver was 64.64 cents an ounce until July 1, 1939, when it was changed by law to 71.11 cents. The 1939 law also deprived the Secretary of the Treasury of his discretion regarding purchases of newly mined domestic silver and ordered him to buy all that was offered at the new price of 71.11 cents an ounce. The prices paid for foreign silver were lower, ranging between 35 and 40 cents an ounce. Even this price, however, represented a marked increase over 1932 levels. Silver advocates stated proudly that these silver purchases cost the Treasury nothing; in fact, they yielded a large seigniorage profit, because the silver that had been purchased at a cost of about \$1370 million could be coined into about 3300 million silver dollars or used as backing for an equivalent amount of silver certificates.

The fallacy of the argument that increasing the price of silver would help the "teeming millions in the Orient" was soon apparent. As the price of silver rose, the prices of silver money also rose in the foreign-exchange market, thereby decreasing the ability of those countries to export without lowering their prices at home. This deflationary pressure was intensified as some of their silver coins were melted and exported. In the end, most silver countries abandoned silver as a standard and adopted paper standards or tied their money to the dollar or the British pound. Thus, the long-run effect of our silver policy will probably be to reduce still further the use of silver in foreign monetary systems.

Though this chapter deals primarily with monetary developments prior to our entrance into World War II, it is convenient to note briefly our experience with silver during and immediately following that war. Owing to the great increase in the industrial demand for silver, the Treasury ceased

buying silver in March, 1942, and subsequently began to sell or lend its "free silver"—that not required as backing for silver certificates—for industrial purposes. As these supplies were not sufficient to relieve the acute shortage, Congress in 1943 enacted legislation permitting the sale of silver at not less than 71.11 cents an ounce. When this permissive legislation expired at the end of 1945 while silver was still critically short for industrial purposes, the silver interests tried to force through legislation requiring the Treasury to pay \$1.29 an ounce for all domestic newly mined silver and prohibiting it from selling silver at less than this price. Strong opposition from the silver-using industries developed, and a compromise measure fixing the Treasury buying and minimum selling price at 90.5 cents an ounce was enacted in July, 1946. Our silver producers are now assured of at least 90.5 cents an ounce for their current output, though the price of other silver is lower.

THE GOLD STANDARD ABROAD AFTER 1933

After our abandonment of gold in 1933, gold standards remained in force in only a few important countries—France, Belgium, Holland, Switzerland, and Luxembourg. These are often referred to as "the gold bloc" because of their agreements to remain on gold without devaluing their money. But even these countries were to devalue their money in the face of the general deflationary pressure intensified by our monetary policy. Our 69 per cent increase in the price of gold effected corresponding increases in the prices of gold-bloc money in the foreign-exchange market; the French franc, for example, rose from 3.93 cents in 1932 to 6.57 cents in 1934. Since the gold-bloc money had already risen in terms of most paper money, these countries found it increasingly difficult to sell their products in the export markets without drastic price reductions at home. The deflationary pressure was intensified by withdrawals of both long-term and short-term funds by foreigners and nationals who feared that the gold-bloc money would depreciate in terms of gold. Finally, in 1936, the gold-

bloc countries concluded that further deflation was unbearable and that they would have to withdraw from their position. A few of them definitely abandoned the gold standard. Others, like France, abandoned gold temporarily and then returned to a modified gold standard, with the gold value of their money reduced by amounts ranging between 25 and 34 per cent. After these actions by the gold-bloc countries, no money in the world was freely convertible into gold at the 1929 rate.

Announced simultaneously with the French devaluation of the franc on September 25, 1936, was the Tripartite Agreement among Great Britain, France, and the United States. Several other countries adhered to the agreement during the next few months. Essentially this was a "gentleman's agreement" on an "hour-to-hour" basis for cooperative action to stabilize exchange rates among the various moneys, or at least to govern exchange fluctuations cooperatively. The agreement had two principal purposes: (1) to assist the French government in securing internal acceptance of its action in devaluing the franc, and (2) to avoid competitive devaluation of money. For some time the press had been speculating on the possibility of an international currency war in which each country would try to lower the value of its money in terms of others for the purpose of expanding its exports. One of the principal purposes of the Tripartite Agreement was to avoid such ruinous competition and to coordinate the operations of the various countries in the foreign-exchange market. The functioning of exchange stabilization funds in general and of the Tripartite Agreement will be discussed more fully in a later chapter. It is sufficient here to note that the countries did cooperate, but that they allowed a number of fluctuations of exchange rates to occur.

In summary, then, the outbreak of World War II found only a few countries—the United States and the gold-bloc nations—on gold standards, and these countries had lowered the gold value of their money as well as introducing unprecedented amounts of management into their monetary systems. Internally, their money was highly managed not only by their central banks but also by their treasuries. The values of their

money in foreign-exchange markets were managed by central banks, treasuries, and powerful exchange stabilization funds. Gold had lost much of its power even in gold standard countries, and most of the world was on inconvertible paper standards.

THE GOLDEN AVALANCHE

No discussion of gold standards would be complete without at least a brief survey of the avalanche of gold that has swept into the monetary systems of the world, especially that of the United States, since about 1933. This flood is the more remarkable because it was so unexpected. In fact, throughout the 'twenties and early 'thirties monetary experts warned that gold production was insufficient to support a stable price level without the use of gold-economizing measures, such as gold-bullion and gold-exchange standards and reductions of central bank reserve requirements. But before the outbreak of World War II the problem was to devise methods of preventing greatly augmented gold stocks from effecting excessive increases in money supplies.

The magnitude of this golden avalanche is indicated by the fact that the gold reserves of central banks and governments rose from about \$10,340 million at the end of 1929 to more than \$29 billion at the end of 1941.¹⁵ In part, this increase merely reflects the higher price of gold, as existing gold stocks and physical additions to them were revalued at increased prices. For example, our action in raising the price of gold 69.4 per cent effected a corresponding increase in the value of our gold stocks. Similar revaluations occurred in other countries. But much of the increase represents physical additions to monetary gold stocks emanating from (1) increased production, (2) imports from the Orient, chiefly from India, and (3) the melting of gold scrap.

The increase of production is shown in Table 12. By 1940

¹⁵ These figures are not, of course, accurate measures of the size of total monetary gold stocks, for they omit monetary gold outside of governments and central banks and include some "gold equivalents." They do indicate the trend, however.

the physical output of gold mines had more than doubled the 1923-29 rate, and the value of newly mined gold, reflecting the increase in gold prices, had risen by 270 per cent. In fact, the value of the newly mined gold during this period, at current gold prices, substantially exceeded the value of the entire world's monetary gold stocks in 1929.

TABLE 12. WORLD GOLD PRODUCTION¹⁶

Period	Production in Millions of Fine Ounces	Index of Physical Gold Production, Average 1923-29 = 100	Value in Mil- lions of Dollars (\$20.67 an ounce, 1933, and earlier; \$35 an ounce in 1934 and later)	Index of Value Average 1923-29 = 100
1923-1929 (annual average)	18.8	100	\$ 388.6	100
1930	20.9	111	432.1	111
1931	22.3	119	460.7	119
1932	24.1	128	498.2	128
1933	25.4	135	525.1	135
1934	27.4	146	958.0	247
1935	30.0	160	1050.0	270
1936	32.9	175	1152.6	296
1937	35.1	187	1229.1	316
1938	37.7	201	1319.6	340
1939	39.5	210	1383.7	356
1940	41.1	219	1437.3	370
1941	40.3	214	1411.6	363

Why did gold production increase so markedly? Not because of great new gold discoveries or revolutionary improvements in the technology of gold mining, but because of the great increase in the purchasing power of gold for goods and services, including the services of labor. In the first years of the depression, before the price of gold was increased, gold production rose in response to the drop in prices that entered into mining costs while the price of gold remained stable. With its price pegged by monetary authorities, gold was the only commodity whose production was enhanced by deflation. But the greater part of the rise in output resulted from increasing the price of gold without raising the prices of other

¹⁶ Source: *Annual Report of the Director of the Mint for the Fiscal Year Ended June 30, 1943*, p. 98.

goods and services in proportion. With greatly increased prices for their product and with the wages of labor and the costs of materials lagging far behind, gold miners found it profitable to expand greatly the scope of their operations. The expansion of output would have been even larger if South Africa had not as a matter of policy diverted much of its mining from richer to poorer ores.

The flood of gold into monetary uses was further augmented by large imports from the Orient. For example, British India, during the relatively prosperous 'twenties, had absorbed about $3\frac{1}{2}$ million ounces of new gold each year. But as its own prosperity dwindled and the purchasing power of gold abroad rose to unprecedented levels, it threw large amounts of the yellow metal on world markets. Its exports for the period 1931-40 amounted to more than 41 million ounces worth about \$1430 million.

Another source of monetary gold during this period was the melting of scrap. Unknown but substantial amounts came from this source.

The above factors—increased gold production, exports by the Orient, and the melting of gold scrap—accounted for the great increase in the world's monetary gold stock. But almost the entire increase came to the United States. As shown in Table 13, our monetary gold stock rose from \$3997 million at the end of 1929 to \$22,737 million at the end of 1941, an increase of nearly 470 per cent. A small part of this increase came from domestic production; another part (\$2805 million) resulted from the revaluation of our gold stocks in 1934; but by far the largest part—more than \$16 billion—resulted from gold imports.

This golden avalanche raised at least three sets of inter-related questions: (1) Is it wise national policy to purchase such huge amounts of gold from the rest of the world, giving in return American goods and services or American securities? (2) How can we prevent such gold inflows from inflating our price levels sooner or later? Should we cease buying gold or take other measures to arrest its inflow? (3) May not the concentration of gold in the United States at the time that

most other countries have no more than a lukewarm affection for gold standards make them unwilling to return to gold? Is there a real danger that other countries either will refuse to accept our gold for their goods and services, or will accept it only at greatly reduced values, so that we shall be left

TABLE 13. MONETARY GOLD STOCK OF THE UNITED STATES, 1929-1941¹⁷

End of	Monetary Value of Gold Stock (Millions of dollars)	Increase During Year (Millions of dollars)	Value of Domestic Gold Pro- duction (Millions of dollars)	Net Gold Imports (Millions of dollars)
1929	\$ 3,997	—	—	—
1930	4,306	309	43	280
1931	4,173	- 133	46	145
1932	4,226	53	46	-446
1933	4,036	- 190	47	- 174
1934	8,238	4,202	93	1,134
1935	10,125	1,887	111	1,739
1936	11,258	1,132	132	1,117
1937	12,760	1,502	144	1,586
1938	14,512	1,751	149	1,974
1939	17,644	3,132	162	3,574
1940	21,995	4,351	170	4,744
1941	22,737	742	170	982
Total increase, Dec. 31, 1929-Dec. 31, 1941		\$18,740	\$1,313	\$16,655

holding a bag well filled with most of the world's gold and silver? These questions will be considered again in a later chapter.

We have now traced briefly the principal developments pertaining to monetary standards prior to the outbreak of World War II. Discussion of subsequent developments will be postponed until after we have explored the fields of commercial banking, central banking, and foreign exchange.

¹⁷ For basic data and explanations of the contents of these figures, see Board of Governors of the Federal Reserve System, *Banking and Monetary Statistics*, Washington, 1943, pp. 522-525, 536.

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Credit and Credit Instruments

IN THE PRECEDING CHAPTERS, WHICH DEALT LARGELY WITH the functions of money and monetary standards, we frequently had occasion to refer to credit (or debt) and to credit (or debt) instruments. The purpose of this chapter is to investigate the nature and types of credit and debt, the nature of credit instruments, and the functions of credit in our economy.

THE NATURE OF CREDIT OR DEBT

It is necessary to emphasize at the outset that credit and debt are merely the same thing looked at from two different points of view. They are an obligation to pay in the future and, since money is so widely used as a standard of deferred payments, they are usually obligations to pay a fixed sum of money. From the point of view of the person to whom the future payment is to be made, the obligation is a credit; it is his claim against another for payment. But from the point of view of the one who is obliged to pay in the future, the obligation is a debt. Suppose, for example, that Reilly has promised to pay MacGregor \$1000 on the following July 31. Reilly is likely to call the obligation a debt, whereas MacGregor will insist that it is a credit. A neutral third party can settle the quarrel by pointing out that the two parties are merely looking at different sides of the same shield. Since

the two are identical, it is obvious that the amount of debt outstanding at any time is equal to the amount of outstanding credit, and that the amount of each is the sum of existing obligations to pay in the future.

This point would not have been labored at such length if credit and debt were not viewed so differently by the general public. Credit is usually looked upon with approval and increases in its quantity are ordinarily considered beneficial. We often hear such statements as "Credit is the lifeblood of business" and "Prosperity depends on an orderly flow and a continued increase of credit." Debt, however, enjoys much less approbation. People speak of "the burden of debt" and "the necessity of decreasing our debt burden." Since debt and credit are the same thing, our attitude must be the same toward both. We shall see later that whether or not credit (or debt) has favorable effects on debtors, creditors, and the general public depends on its amount and the rate at which it is increased or decreased, on general economic conditions at the time, and on the purposes for which it is created.

The great bulk of credit or debt originates in economic and financial transactions in which creditors surrender money or goods at one point of time in exchange for debtors' promises to pay in the future. We are all familiar with the creation of debt by the sale of goods or services "on credit." For example, Mrs. Jones receives groceries from a store, promising in return to pay at the end of the month. A big corporation gets raw materials from its suppliers with the understanding that payment will be postponed until the end of the quarter. Smith buys a house, deferring at least part of the payment until later months. Much of the outstanding debt at any time has arisen from such "extensions of credit" by sellers of goods and services. Most of the rest arose out of money-lending transactions in which creditors surrendered money at one point of time in exchange for the promises of debtors to pay later, usually with interest. These money-lending transactions range all the way from the simple case in which Joe lends Bob \$5 until payday to the much more complicated one in which a large public utility corporation borrows \$100 million, giving in return its bonds, which carry its promise to pay the principal

at the end of a stated number of years and to pay interest at 3 per cent annually. Thus, it is often said that the creation of credit involves the exchange of present goods or purchasing power against future goods or purchasing power, interest being paid by the debtor for the privilege of having the goods or purchasing power sooner.

The Basis of Credit

The ability of any person, business firm, or governmental unit to get credit—to command goods or money at one time in return for a promise of future payment—depends upon the potential creditors' faith that he will be both willing and able to pay in accordance with his promise. The popular statement that "Smith's credit is good for half a million" means that he is believed to be both willing and able to pay fully and punctually a debt of at least half a million dollars. The statement that "his credit is bad" indicates lack of faith in either his willingness or his ability to pay. We may say, then, that the ability of any potential debtor to obtain credit depends on (1) his character, (2) the value of his capital, the convertibility of his capital into money, and the size and nature of his other obligations, (3) his probable income, and (4) his ability to get others to back his promise to pay.

Character is of great importance in determining a debtor's ability to obtain credit. Creditors analyze carefully an applicant's past record in meeting his obligations, his reputation for general honesty, his police record, his likelihood of becoming involved in damage suits of any kind, his marital status, his drinking habits, and all his other personal characteristics and associations that might bear on either his ability or his willingness to pay. Anyone who has a reputation for paying his debts only when forced to do so by the courts is likely rapidly to lose his ability to command credit, no matter how rich he may be.

The value and character of the potential borrower's capital are another set of important determinants of credit worthiness. Credit analysts therefore scrutinize both the value and the character of an applicant's capital, noting especially the

probable stability of the value of his assets and their ability to be converted into money quickly and without loss of value. Other things being equal, an applicant who possesses capital with stability of value and a high degree of liquidity is more likely to obtain credit easily than one whose capital fluctuates more widely in value or is less liquid. For this reason, the owner of easily marketable short-term government obligations is often in a better position to borrow than the holder of little-known common stocks or real estate. However, a creditor is interested primarily in an applicant's *net capital*; he therefore investigates the applicant's other debts as well as his assets to find out how much his assets exceed his other liabilities.

The size of an applicant's future income is another major determinant of his ability to obtain credit. We all know of cases in which credit was extended, even though the borrower lacked capital, on the basis of his expected income. Thus, a man with a steady job may buy on credit, a governmental unit borrows on the basis of expected income from taxes, or a business firm secures credit because of the lenders' faith in the demand for its output and the ability of its management to make money. On the other hand, doubt as to an applicant's future income may greatly reduce his ability to obtain credit. This is especially true when the applicant's capital is largely in the form of fixed assets that can be sold only at a price far below the cost of construction. Expected future income is certainly a major determinant of credit worthiness.

In most cases the ability of a person, firm, or governmental unit to obtain credit depends on the factors outlined above—the creditors' faith in his willingness to pay, and his ability to pay as evidenced by the value of his capital, the volume of his other debts, and his prospects for future income. In some cases, however, one may borrow on the basis of guarantees of payment given by others. A friend endorses Joe's note, promising "to make it good" if Joe fails to pay. A giant corporation guarantees the bonds of its subsidiaries. The Federal Housing Administration guarantees payment of a real-estate mortgage. A bank guarantees payment by one of its clients. We shall find later that there are many ways in which a debtor's friends

or relatives, or his bank or business associates, or the government can bolster his credit worthiness by backing his promise to pay. •

Thus, the basis of credit is faith in the willingness and ability of a debtor or of his guarantors to pay as promised. But we must remember that the ability of a debtor to pay is not determined solely by his own efforts, ability, and character. It is also subject to wide variations in response to changes in general economic conditions. Credit is generally much more available in periods of high national income and brisk demand for output than in times of low national income and stagnant demand. We shall see later that the interrelationships of credit and income levels are very intricate.

Types of Credit or Debt

Credit or debt has been classified on many bases, only a few of which need be discussed here. One important basis of classification is the purpose for which the debt is incurred. On this basis, debts are *consumption* or *production* debts. Most of us are familiar with consumption debts, those incurred to enable the debtor to consume earlier and pay later. A family gets groceries "on credit" in return for a promise to pay at the month's end; an office worker borrows from a small-loan company to buy furniture for immediate use; a father borrows from a loan shark to buy medicine; an impatient heir gets credit from his club, promising to pay as soon as his grandfather dies. In such cases the debtor's motive is to get consumption goods or services sooner than would otherwise be possible.

The greater part of modern debt, however, is *production* or *productive* debt. Productive processes are time-consuming. A farmer must plant seed wheat in the fall in order to harvest his crop nearly a year later. Newly planted orchards will not start to bear fruit for several years. A merchant must acquire inventories some time in advance of sales. A manufacturer must obtain and use plant facilities which will yield their full return only over a long period of years, as well as raw materials, supplies, and labor whose finished products may not

be sold for several weeks or even months. There are only three general ways in which producers can get money to purchase the necessary facilities, materials, and labor with which to carry on their productive processes: (1) By plowing in earnings. The farmer, merchant, or manufacturer can save out of his income and use these savings to purchase the things needed to facilitate production. (2) By selling shares of ownership. A farmer can sell a share of ownership to a partner, a merchant can take in a new partner, or a corporate manufacturer can sell new shares of ownership in the form of common or preferred stock. (3) By going into debt. A producer can acquire goods or services on credit or borrow the money with which to pay for them. Since producers often find it inconvenient or impossible to secure adequate funds to maintain or expand their output by plowing in earnings and are either unwilling or unable to get enough funds by selling ownership interests, a large part of productive activities are financed through the incurring of debt. Thus it is through debt creation that an important part of our savings find their way into use in financing production. In the absence of borrowing and lending activities, spendings for production and consumption would not be maintained at sufficiently high levels to support high levels of demand and employment.

Credit or debt is also classified on the basis of the amount of time elapsing between the time it is created and the time it is to be retired. On this basis it is: (1) long term, (2) intermediate term, (3) short term, (4) payable on demand. Debts running five years or more are ordinarily called long-term. Such debts are usually incurred when the borrower knows that he cannot repay in a shorter period. For example, a corporation borrowing to build a factory knows that it is unlikely to earn enough to repay the loan in less than ten years and fears that a shorter debt might be embarrassing if it could not be renewed. A railroad borrowing to construct a roadbed or to buy locomotives is in a similar position, as is a farmer going into debt to buy land.

Intermediate-term credit, the name usually applied to debts running from one to five years, is likely to be granted to finance the purchase of things that will return their full value

only over such a period. For example, such debts may be incurred by a farmer to buy milk cows, or by a manufacturer to buy non-durable machines, or by a merchant to buy store fixtures.

Short-term credit, that running for less than a year but with a stated maturity date, is widely used for consumption purposes, to purchase inventories of raw, semi-finished, or finished materials, to meet payrolls, to finance goods in transit, and for many other purposes.

Debts payable on demand are those that must be paid immediately whenever the creditor demands payment, or "calls" the debt. Owing to the dangers inherent in obligations to pay on demand without previous warning, industrial and commercial firms are reluctant to incur large debts of this type. "Call" or demand loans against stocks and bonds as collateral are an important part of the New York securities markets. But by far the largest part of debts payable on demand are those that circulate as money. Government notes of various kinds, central bank notes, commercial bank notes, and bank demand deposits are all debts which require their issuers to pay whenever the demand is made. We shall consider these debts in detail in later sections.

Another classification of credit or debt is on the basis of the security given by a debtor to insure payment. Some debts are *unsecured*; they have no specific assets or income pledged for their payment but are general claims against the debtor's assets and income. Other debts are *secured*; they are not only general claims against the debtor's assets and income, but they also have specific assets or income pledged for their satisfaction. Thus a borrower may give his creditor a mortgage claim on his house, a chattel mortgage on his car, a mortgage on a factory, a warehouse receipt for tobacco, collateral made up of stocks or bonds, or a first claim on bridge tolls.

It must not be inferred that unsecured debts are necessarily less likely to be paid than secured debts. In fact, credit may be extended without requiring specific security simply because of the unquestioned safety of the loan. A bank would hardly require Mr. Du Pont to pledge his watch as security for a \$5 loan, and it would be equally willing to lend large amounts

to General Motors Corporation without demanding specific pledges. The fact that a loan is secured may, though it need not, indicate doubt as to the general credit worthiness of the borrower. Specific security for credit may, however, help to improve a creditor's position, the extent of the improvement depending on the value of the specific security given. It enables a creditor to insert his claim ahead of those of other creditors and also to prevent others from inserting their claims ahead of his.

Of the many other classifications of credit or debt we shall mention only two. The first is based on the type of creditor. Thus we have credit extended by banks of many kinds, by manufacturers, by wholesalers, by retailers, by governments, by individuals, and so on. The second is based on the type of debtor. A detailed classification on this basis would include practically every type of governmental unit, business firm, and individual, for debts are incurred by almost everyone.

CREDIT INSTRUMENTS

Outstanding credit or debt need not be evidenced by a written contract. We have all been parties to "parole credit" transactions in which the agreement to pay was merely an oral contract with no written evidence of the obligation. Such an arrangement may be satisfactory in small credit transactions among friends, but it has serious disadvantages for general use. In the first place, if the parties disagree as to the terms of the credit contract there is no reliable way of ascertaining who is right. The creditor may even have difficulty in proving the existence of any obligation to pay. And in the second place, the creditor is likely to have difficulty in transferring the claim to a third party if the need to do so should arise. Only in the exceptional case can a creditor persuade a third party to buy his claim against a debtor if there is no written obligation to pay.

Some debts are evidenced only by book accounts. Thus, a college student's debt to his tailor is usually evidenced only by an entry in the tailor's ledger, department store credits to

customers are evidenced by "charge accounts" on the store's books, and so on. Though more satisfactory than oral contracts, these have their disadvantages. Controversies as to the terms of the debt may be difficult to settle, and the sale of these claims is usually, though not always, difficult.

It was largely to overcome these difficulties that written credit instruments were evolved long ago. By "credit instrument" we mean a legal document evidencing the existence and terms of a credit or debt contract. The reduction of a contract to writing goes far toward eliminating doubt as to the existence and precise terms of a debt contract and therefore improves the quality of the creditor's claim and increases his ability to sell the claim to others. Credit instruments can be sold whether they are *non-negotiable* or *negotiable*. Non-negotiable credit instruments are those whose rights are governed by the general common and statute laws of contract, whereas negotiable instruments enjoy special advantages conferred by the negotiable instruments laws. Title to non-negotiable instruments can be transferred only by assignment; title to negotiable instruments is transferable by endorsement.¹

Under the general common and statute laws of contract, which govern non-negotiable instruments, title is transferred from one owner to another by assignment only.

In assignment, only the assignor's title is transferred, so that the assignee gets only such title as his assignor possessed, and any defense existing at the time of the assignment, whether by reason of breach of warranty, set-off, recoupment, or fraud in the inducement, can still be used against the assignee.

At the present day, an assignee takes no better right or title than his assignor possessed; he is said "to stand in the shoes of his assignor" and is subject to all defenses which the obligor possessed against the assignor.²

For these reasons non-negotiable paper should be purchased only with full knowledge of the various conditions surrounding its creation. Some of the dangers involved in purchasing non-

¹ For a good discussion of this general subject, see C. N. Hulvey, *Commercial Law*, Macmillan, New York, 1930, chap. 9.

² *Ibid.*, pp. 173-174.

negotiable paper can be indicated by an example. Suppose that Smith buys a car from the Ajax Motors Co., giving in return his written but non-negotiable promise to pay \$1000 at the end of three months. Suppose also that this paper is transferred by assignment from the Ajax Motors Co. to Reilly, who then transfers it by assignment to Johnson. As holder of the paper, Johnson runs several risks. In the first place, Smith may legally refuse to pay him, claiming that the car was not as warranted, that the Ajax Motors Co. owed him \$500 that should be offset against his debt, or that he was fraudulently induced to issue the promise to pay. In short, Smith may refuse to pay Johnson for any of the reasons that would have excused him from making full payment to the Ajax Motors Co. In the second place, Johnson runs the risk that Reilly had found or stolen the note, for Johnson gets no better title to it than Reilly had.

It was for reasons of this sort that, even as early as the Middle Ages, merchants, traders, financiers, and others dealing in credit found non-negotiable paper inconvenient. To facilitate their operations they needed credit instruments that were unconditional obligations to pay and that could be freely bought and sold without the usual doubts concerning title. To satisfy this need for easy negotiability a new branch of law evolved; it culminated in the negotiable instruments laws. Credit instruments that meet the specifications of these negotiable instruments laws are known as negotiable instruments.

To be negotiable, an instrument must meet the following requirements:

1. It must be in writing.
2. It must be signed by the maker or drawer.
3. It must be an unconditional promise or order to pay a certain sum of money.
4. It must be payable on demand or at a fixed or determinable future date.
5. It must be payable to order or to bearer.

Most of these requirements are self-explanatory. Instruments that meet them are written and signed unconditional promises or orders to pay a fixed sum of money at a fixed or determi-

nable future time. Special attention should be given to the terms "bearer" and "order," for paper failing to contain one of them is not negotiable. An instrument promising or ordering payment to "bearer" or to "John Smith or bearer" is payable to any "holder in due course." An instrument promising or ordering payment to "John Smith or order," or "to the order of John Smith," is payable either to John Smith or to anyone to whom he transfers title by indorsement. In fact, it becomes payable to bearer if John Smith endorses it in blank by signing his name.

A *holder in due course* of a negotiable instrument has a title to the instrument that is nearly perfect. Such a holder in due course is one who has taken the instrument under the following conditions:

1. The instrument is complete and regular upon its face.
2. He became the holder of it before it was overdue, and without notice that it had previously been dishonored, if such was the fact.
3. He took it in good faith and for value.
4. At the time it was negotiated to him he had no notice of any infirmity in the instrument or defect in the title of the person negotiating it.

A holder in due course not only has a nearly perfect title to the negotiable instrument, but is also free from all the debtor's defenses mentioned above in connection with non-negotiable instruments. The debtor has left only the defense that the instrument never had legal existence because of such reasons as forgery, alteration, or infancy of the maker.

As already indicated, title to negotiable instruments is transferred not by assignment but by *endorsement*. Such instruments payable to bearer require no endorsement for negotiability, though a buyer may, of course, ask for one. It is important to note that one who gives an unqualified endorsement to a negotiable instrument in effect warrants that:

1. The instrument is genuine and in all respects valid.
2. He has good title to it.
3. He has no knowledge of any fact which would impair the validity of the instrument or render it valueless.

4. If on due presentment it is dishonored by the debtor, the endorser will pay the holder or any subsequent endorser who may be compelled to pay it.³

There are three general classes of unqualified endorsements: (1) blank endorsement, (2) endorsement to a specified person or order, and (3) restrictive endorsement. To illustrate each, let us take the case of a promise or order to "pay to John Smith or order." If Smith endorses it in blank, merely signing "John Smith," the instrument is in effect made payable to bearer; it becomes freely negotiable without further endorsement. If he endorses it by writing "Pay to Sam Jones" or "Pay to Sam Jones or order" and signs his name, the instrument is not further negotiable without endorsement by Sam Jones. If he writes "Pay only to Sam Jones" and signs his name, the instrument at this point loses its negotiability.

Owing to the ease of transferring title by endorsement and the ample protection given their holders in due course, negotiable instruments are easily and widely bought, sold, and exchanged for each other.

Credit instruments are divided into two broad classes: (1) promissory notes, and (2) bills or exchange, or drafts. Both non-negotiable and negotiable credit instruments fall into these two categories, but we shall discuss here only those that meet the requirements of the negotiable instruments laws.

Promissory Notes

A promissory note is an unconditional statement in writing made by one person to another and signed by the maker, promising to pay on demand, or at a fixed or determinable time in the future, a stated sum of money to order or to bearer. When a note is drawn to the maker's own order, it is not complete until endorsed by him. Several aspects of this definition should be noted carefully.

1. The promise to pay must be in writing.
2. The promise to pay must be unconditional.

³ We shall not discuss qualified endorsements here. On this subject, see *ibid.*, pp. 174-180.

3. The amount to be paid must be certain in terms of money.
4. The note must be payable on demand, at a fixed time, or at a determinable time.
5. The note must be payable to bearer or to the order of a specified person.

All these conditions must be met if the note is to be negotiable.

There are at least two parties to a promissory note: the *maker* or *payer*, and the *payee*. In some instances, the *maker* and the *payee* are the same person, the maker promising to

<u>Amherst, Massachusetts</u>	
<u>\$ 1000</u>	<u>February 23, 1948</u>
<u>Sixty days</u>	after date <u>I</u> promise to pay to the
order of <u>John G. Davenport</u>	
The sum of <u>One thousand and 00/100</u>	Dollars
With interest from date at <u>5</u> % per annum	
<u>Thomas M. Smith</u>	

FIG. 5. A Simple Negotiable Promissory Note.

pay to himself or order and then endorsing the note so that it becomes negotiable. The payee may be "bearer" or a specified person. Subsequent purchasers of the note become involved as holders and often as endorsers. Fig. 5 shows the general form of a simple promissory note. Though all negotiable promissory notes contain these elements, they vary greatly in other respects. They differ as to the time elapsing before maturity; some mature only after a long period of years, some in a year, some in a few months or weeks, and some are payable on demand. Some are secured, others unsecured. Some are issued by corporations, some by governments, some by banks, and so on.

Promissory notes also vary as to the way in which they yield interest to their holders. Some notes that are payable on demand and circulate as money do not yield interest in any form. Central bank, commercial bank, and government notes

payable to bearer on demand are in this category. Others, like that in the figure, provide for the payment of interest at a stipulated rate, in addition to the principal. Still others call for payment of a stipulated amount of principal on the maturity date and make no specific provision for interest. For example, a promissory note may provide for the payment of \$100 one year after date. A buyer of the note will secure interest by buying the note at a discount; he will subtract interest in advance, or "discount" the note. If he is to hold the note for a year and earn 5 per cent on his loan, he will pay only \$95.24 for it. The \$4.76 difference is his 5 per cent interest on the amount advanced.⁴

Bills of Exchange, or Drafts

In contrast to promissory notes, which are promises to pay, bills of exchange, or drafts (both are the same), are orders to pay. "A bill of exchange is an unconditional order in writing addressed by one person to another, signed by the person giving it, requiring the person to whom it is addressed to pay on demand or at a fixed or determinable future time a sum certain in money to order or to bearer."⁵ There are three parties to a draft: the *drawer*, or the one who orders payment; the *drawee*, or the one who is ordered to pay; and the *payee*, or the one to whom payment is ordered to be made. In most cases the three parties are different persons; thus, Jones (the drawer) may order Smith (the drawee) to pay to the order of Thompson (the payee). In other cases only two persons are involved, the drawer and the payee being the same. Thus, Jones may order Smith to pay to the order of Jones. In a few cases drawer, drawee, and payee are the same person. Thus Jones may order himself to pay himself or order and then make the draft negotiable by endorsing it.

Drafts or bills of exchange are classified on several bases, of which we shall explore only a few of the most important. One

⁴ The formula for simple discount is: Present value = $\frac{A}{1+i}$, where A is the future amount being discounted and i is the rate of interest for the period before payment, being stated in percentage terms, such as .05 or .02.

⁵ Section 126 of the Negotiable Instruments Law.

basis for classifying drafts or bills is the type of drawee involved. Thus, an order on a bank to pay is a *bank draft* or *bank bill*, or a *banker's draft* or *banker's bill*. An order to any other type of drawee to pay is a *trade draft* or *trade bill*.

Drafts or bills are also classified on the basis of the amount of time elapsing before payment is to be made. A draft ordering payment "on demand" or "at sight" is known as a *sight draft* or *sight bill*, or a *demand draft* or *demand bill*. A draft ordering payment after a lapse of time is known as a *time draft* or *time bill*. Time drafts fix the time of payment in three general ways. Some state a specific date of payment in

<u>\$ 2000</u>	<u>Amherst, Massachusetts</u>
	<u>March 10, 1948</u>
At sight pay to the order of	<u>Adam Smith</u>
The sum of	<u>Two thousand and 00/100</u> Dollars
To	<u>Richard Strong</u>
	<u>14 Michigan Boulevard</u>
	<u>Chicago, Ill.</u>
	<u>James F. Fisher</u>

FIG. 6. A Simple Sight or Demand Trade Draft.

the future. Others accomplish the same thing by requiring payment a stipulated number of days after the date of drawing the draft. Still others require payment a certain number of days "after sight," that is, after the bill is presented to the drawee. This last method is a legacy of the period when both land and water transportation were so irregular as to make forecasts of dates of arrival unreliable.

Before discussing time drafts let us look at the form and use of sight or demand drafts. In the sight trade bill shown in Fig. 6, the drawer (Fisher) ordered the drawee (Strong) to pay to the order of the payee (Smith) \$2000 at sight. This draft may have had any one of several purposes. It may have been used to clear debts. If Fisher owed Smith \$2000, and Strong owed Fisher the same amount, all the debts could be cleared by having Strong pay Smith or his order. The draft could have been to force Strong to pay for supplies before he received title to them. For example, Fisher may have shipped

maple syrup to Strong by Smith's truck and ordered payment before delivery of title. Such a draft can also be used as a means of "putting pressure" on a slow-paying debtor. Suppose, for example, that Strong has bought \$2000 worth of syrup from Fisher on book credit and has refused to pay or blithely ignored numerous requests for payment. By drawing a draft on Strong and then routing it through Strong's bank for collection, Fisher can put Strong in the position of having to pay or letting his bank discover his untrustworthiness. This use of trade bills for "dunning" purposes has reduced their popularity in this country.

Amherst, Massachusetts		April 26	1948
THE SECOND NATIONAL BANK OF AMHERST			
Pay to the order of	Charles Monroe	\$	105 ²⁷ / ₁₀₀
One hundred and five and ²⁷ / ₁₀₀		Dollars	
James W. Fellows			

FIG. 7. *A Sight Bank Draft.*

The appearance and use of a sight bank draft (Fig. 7) should be familiar to everyone, for bank checks belong in this category. Negotiable drafts on banks ordering them to pay on demand are used to transfer deposit credits from one owner to another, thereby effecting more than 90 per cent of all payments in our economy. These drafts are drawn on banks by individuals, by business firms, and by other banks.

Time drafts, those payable only after a lapse of time, are either *time trade drafts* (or *bills*), or *time bank drafts* (or *bills*), depending on the type of drawee involved. We have already seen that the date of payment may be stated as a specific date, as a stipulated length of time after the date on the draft, or as a stipulated period "after sight," that is, after the draft is presented to the drawee. The time trade draft shown in Fig. 8 calls for the last method of payment.

It is important to note that a draft, as such, is only an order

to pay; it is not an obligation of the drawee to pay. In fact, you can draw a draft on any person or firm, but the mere drawing of the draft does not obligate the drawee to pay. The order to pay can be converted into a binding unconditional obligation to pay through *acceptance* by the drawee. The drawee *accepts* the order to pay by writing on either the face

<u>New Orleans, La.</u>	
<u>April 28, 1948</u>	
<u>Sixty (60) days</u>	after sight pay to the order of
<u>Myself</u>	\$ <u>10,000</u> ⁰⁰ / ₁₀₀
<u>Ten thousand and</u>	⁰⁰ / ₁₀₀ Dollars
To <u>The Lowell Blanket Co</u>	
<u>211 Railroad Street</u>	
<u>Lowell, Mass.</u>	
<u>Montague Davis</u>	

FIG. 8. A Time Trade Draft or Bill.

or the back of the draft the word "accepted" and by affixing his signature and the date of acceptance. Thus, the drawee may accept the draft in Fig. 8 by writing on its reverse side:

Accepted, May 4, 1948
 The Lowell Blanket Company
 By: Cabot L. Lawrence, Treasurer

By this act the drawee transforms the trade bill into a *trade acceptance*, which is his unconditional obligation to pay to Davis or his order \$10,000 sixty days after the date of acceptance.

Acceptances are widely used credit instruments in finance and trade. To illustrate their use in financing trade, let us follow through a specific trade transaction. Suppose that the Lowell Blanket Company purchases \$10,000 worth of wool from Montague Davis, a wool merchant in New Orleans. The buyer does not wish to pay until 60 days after receipt of the wool, and Davis does not want to surrender title to the wool until he has written evidence of the buyer's obligation to pay. The problem may be solved somewhat as follows. Davis will put the wool on a common carrier, consigning it to himself in

Lowell, Massachusetts, and getting from the carrier an *order bill of lading*, which represents title to the wool and which can be endorsed over to others. He then draws on the Lowell Blanket Company the draft shown in Fig. 8, ordering it to pay \$10,000 to him or his order 60 days after sight. Davis may then secure the help of his bank in presenting the draft, to which the order bill of lading is attached, to the Lowell Company for acceptance. A Lowell bank, which is either a correspondent of the New Orleans bank or associated with one of its correspondents, will actually present the draft for acceptance. When the Lowell Blanket Company accepts the draft the bank gives it the order bill of lading endorsed by Davis and it can claim the wool. Davis now holds, or has held for him, the trade acceptance, which is a written obligation of the Lowell Company to pay 60 days later. Davis may, if he wishes, hold the acceptance until its maturity. In this case he would, in effect, be lending \$10,000 to the Lowell Company for 60 days. In actual practice, however, Davis as a wool merchant probably will not want to finance his customers, or will be unable to do so, and will wish to receive payment as soon as possible. He is likely, therefore, to endorse the acceptance and sell it to a bank or some other short-term investor for \$10,000, less interest for 60 days. The acceptance may change hands several times before maturity, each holder financing the Lowell Company for the period he holds its acceptance.

Davis may even sell the draft before it is accepted and at the same time that the wool is shipped. If he does, the transaction will be somewhat as follows. After drawing the draft and securing the order bill of lading, Davis will endorse them and sell the draft to a bank, which will then have the draft, with the bill of lading attached, presented to the Lowell Company for acceptance. After the draft becomes an acceptance and title to the wool is surrendered, the bank may hold the acceptance to maturity or sell it to other investors immediately or at any time before its maturity.

A trade acceptance is a highly convenient and negotiable credit instrument when the acceptor or the drawer is widely known and enjoys an excellent credit standing. It suffers,

however, if the acceptor and the drawer are less widely or less favorably known. In this case, an attempt is usually made to use a bank acceptance, which is a bill of exchange drawn against and accepted by a bank. Let us see how a bank acceptance can be used to finance the transaction we have just described.

In arriving at the terms and conditions of the wool sale, Davis and the Lowell Company may agree that the transaction shall be financed by a 60-day draft drawn on the National Shawmut Bank of Boston. The Lowell Company will go to the National Shawmut Bank and secure a *letter of*

<u>New Orleans, La</u>	
<u>April 28, 1948</u>	
<u>Sixty (60) days</u>	after sight pay to the order of
<u>Myself</u>	\$ <u>10,000</u> ⁰⁰ / ₁₀₀
<u>Ten thousand and</u> ⁰⁰ / ₁₀₀	Dollars
To <u>The National Shawmut Bank</u>	
<u>Boston, Mass.</u>	<u>Montague Davis</u>

FIG. 9. A Time Bank Draft.

credit. This letter of credit will contain the bank's promise to accept the draft drawn on it in accordance with an agreement concerning the amount of the draft, the time of shipping the wool, and so on. The letter of credit will then be sent to Davis. Having received it, Davis will put the wool on a common carrier, secure an order bill of lading made out to himself, and draw a draft on the National Shawmut Bank. The draft will look something like that in Fig. 9. He will then endorse both the draft and the bill of lading and sell the draft to his bank, which will route the draft, with the bill of lading attached, to the National Shawmut Bank for acceptance. Upon acceptance of the draft, the National Shawmut Bank will retain the bill of lading, which it will turn over to the Lowell Company under the terms agreed upon. The bank acceptance, now a binding obligation on the National Shawmut, can be held to maturity by Davis' bank or be sold to any of the numerous

investors who have high confidence in the credit worthiness of the National Shawmut. In accordance with the usual terms of letters of credit, the Lowell Company is obligated to place in the hands of the National Shawmut Bank, before the debt matures, enough money to meet it. But the National Shawmut must pay the debt whether or not the Lowell Company fulfills its part of the contract.

It is interesting to note the role played by the National Shawmut Bank in this transaction. It did not at any time act as a lender of money unless, of course, the Lowell Blanket Company failed to meet its obligations. Instead, it substituted its credit standing for the credit standing of the Lowell Company; in this way it increased the ability of the textile company to secure credit from other lenders.

Summary of Credit Instruments

Outstanding debt or credit is evidenced by (1) oral agreements, (2) book credits (or debts), and (3) written instruments. These written instruments fall into two general classes: (a) promissory notes, and (b) orders to pay (drafts or bills of exchange) which become binding obligations (acceptances) when they are accepted by the drawee. Our discussion of these instruments has deliberately been confined to general principles. We have not attempted to cover all the perplexing legal aspects of negotiable instruments, or to detail the hundreds of variations that have been introduced to adjust these instruments to the peculiar needs of individual industries and transactions. Enough has been said, however, to indicate the great usefulness of these instruments in facilitating the flow of credit and of goods and services.

THE ROLE OF DEBT IN THE ECONOMIC SYSTEM

Our economic system is often called a credit economy, so great is the role of credit or debt in its operation. In fact, debt plays not one role but many. In the first place, as we have already seen, all our money is now made up of debts or credits.

Government promissory notes, Federal Reserve notes, national bank notes, checking deposits, and even coins—all are merely promises to pay on demand. Our total money supply is composed of and varies with the volume of outstanding debts in these forms. The creators of the largest part of our money supply, the banks, are merely dealers in debt; they issue their own promises to pay on demand—checking deposits—in return for the debts of governmental units, corporations, and individuals.

In the second place, the offsetting or clearing of debts or credits greatly decreases the need for money. For example, a country store buys produce from farmers on credit and sells groceries to them on credit, only the difference being paid in money. In some cases the claims of the farmer against the store and of the store against the farmer balance completely, so that no money payments are necessary. Similarly, railroads maintain clearinghouses at which their claims against one another for such things as car and locomotive rentals and charges for the use of roadway are balanced against each other, only the net balances being paid in money. Manufacturers buying from and selling to one another balance their claims and pay only the difference in money. Stock exchange members follow the same practice. This clearing of credits or debts against each other enables the settlement of many claims without the use of money of any kind; it is a means of “economizing” money.

In the third place, the use of debt enables people to space their consumption through time in the way that seems most advantageous. By incurring debt one can secure medical care when it is most needed, and pay later. A family can acquire a refrigerator or furniture for immediate use and pay for it over a period of time. A father can borrow to pay for his son’s education at the time he needs the money, and pay later. Though it is painfully true that the shortsighted often decrease their happiness in the long run through reckless indebtedness for consumption, consumption credit is a highly convenient part of our economic system. The fact that it is sometimes abused detracts in no way from its usefulness to those who employ it judiciously.

In the fourth place, the use of debt greatly facilitates productive processes. We have already seen that production is a time-consuming process and that modern enterprisers need large amounts of land, buildings, machinery, equipment, raw materials, and labor with which to carry on their operations. Many of them could not secure enough money to buy all the necessary equipment and supplies by plowing in earnings or selling shares of ownership. They need to be able to buy goods or services from their suppliers on credit or to borrow money with which to finance their productive purchases. Productive activities would suffer seriously in the absence of debt.

In the fifth place, debt must be created to transfer savings from savers to those who will spend for consumption or investment in order to support an adequate level of spendings for output. Our Puritan morality places the mark of approval on saving. This approval, coupled with our high levels of income and the great inequality of personal incomes, has led us to save a considerable part of our national income every year. If these savings were hoarded the inevitable effect would be to reduce the demand for output and to bring on widespread unemployment. Serious depression can be avoided only if these savings flow back into the market as spendings for output. Some of them, of course, are returned to the market through the plowing-in of earnings by enterprises or the purchase of shares of ownership in business. But some people are not willing to use their savings to expand their ownership holdings. Whether for consumption or investment purposes, debts must be expanded enough to absorb these savings if the latter are to be returned to the market as spendings instead of stagnating as hoards. To illustrate this point simply, let MacGregor represent all the savers in the country and suppose that he saves \$1 billion a year. He may be willing to spend not more than \$600 million for new shares of ownership, thereby returning only that amount to business firms with which to purchase new capital goods and to maintain the national income. If he merely hoards the other \$400 million it is clear that the spendings for output will fall, thereby shrinking the national income. But if he lends it to consumers or productive

enterprises, the resulting increase in debt is a way of channeling savings back into spendings for output and into national income. The importance of this fact will be brought out in later chapters.

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The Principles of Commercial Banking

WE EMPHASIZED MANY TIMES IN EARLIER SECTIONS THAT BY far the largest part of our money supply is made up of checking deposits, which are merely debts of commercial banks payable on demand, and that the size of our money supply depends largely on the banks' activities in creating and destroying these credits. The purpose of this chapter and of several that follow is to clarify the operations of commercial banks. The present chapter will deal primarily with the basic principles of commercial banking.

We shall not discuss here all the institutions that are known as "banks," for many types of institutions that operate on very different principles are included under this generic term. Thus, there are commercial banks, investment banks, savings banks, real-estate mortgage banks, and so on. We are concerned here only with those institutions that create money in the form of circulating bank notes or demand deposits, or both, and that are usually known as commercial banks. Moreover, we shall not discuss at this point the non-commercial bank functions of the institutions known as commercial banks. Such banks are often multi-department firms which, in addition to their commercial banking function, act as savings banks, trustees, executors and administrators of estates, brokers, and so on. These functions will be discussed later. We

are interested here only in the commercial banking function.

It is also essential to point out that the name "commercial bank" is likely to be misleading. It was originally applied to this type of institution because of a widespread belief that banks which issued their own promises to pay on demand, whether these were evidenced by circulating notes or deposit credits, should make only short-term "commercial" loans to others. Thus, a bank might properly lend funds to a manufacturer for a short period to buy raw materials or labor which would be incorporated in a finished product to be sold within a few weeks or months, or to a merchant to acquire goods to be sold in a short time, or to a shipper to finance the movement of his product. But it was considered improper for a money-issuing bank to extend long-term investment credit to finance the purchase of land, buildings, or durable machinery and equipment. This was "the commercial loan theory of banking." Banks have at times adhered to these rules, but they certainly do not today. Our "commercial banks" buy government bonds of virtually all maturities, corporation bonds, urban and farm real-estate mortgages, and consumption debts of individuals as well as short-term commercial debts. In fact, there are few types of loans that our "commercial banks" do not make. We use the term "commercial banks" because of its popularity, but with the caution that "checking deposit banks" would be a more accurate description.

THE GENERAL FUNCTION OF COMMERCIAL BANKS

Commercial banks are most accurately described as dealers in debt or, what is the same thing, as dealers in credit. They acquire the debts of others, giving in return their own promises to pay on demand, these demand debts of the banks being evidenced by bank notes or demand deposits. The debts of others acquired by banks are included in the banks' assets, for they are the banks' claims against others. Thus, commercial bank assets include many kinds of debts owed to the banks: government debts, corporation bonds, mortgages on real

estate, short-term corporate debts, debts of individuals, debts of central banks, debts of other banks, and so on. We emphasize that the banks' assets are made up primarily of the debts of others.

On the other hand, the banks' circulating notes and demand deposits are *liabilities* of the banks; they are the banks' obligations to pay on demand, and their obligation is to pay legal-tender money. Most of us can easily believe that bank notes are merely bank debts payable on demand and that banks can create money by issuing them. There has been much more reluctance, however, to accept the fact that bank deposits are bank debts which the banks can and do create in amounts far greater than their holdings of coin and paper money. The very term "deposit" seems to imply that a bank has merely accepted a certain amount of "money" for safekeeping in its vaults. Anyone who persists in such a belief will never comprehend commercial banking. To understand banking, one must constantly bear in mind the following interrelated facts: (1) Demand or checking deposits are legally only the banks' promises to pay legal-tender money on demand. If you acquire a deposit at a bank by "depositing" a bundle of paper money and the bank fails the next day with the paper money still in its vaults, you have only a general claim against the banks' assets, not a specific claim against the paper money that you surrendered. (2) Bank holdings of coin and currency are ordinarily equal to only a very small percentage of the bank's outstanding debts in the form of deposits. Coin and currency holdings equal to more than 2 or 3 per cent of its deposits are unusual. (3) Only a small part of bank deposits is originally created through the "deposit" of coin or currency; by far the larger part originates as banks give them in exchange for the debts of others.

In view of the above facts, why are people willing to hold demand claims against banks? Why don't they demand that the banks pay all these debts immediately with coin or paper money? Why are the banks so courageous as to issue their promises to pay on demand in amounts so far in excess of their holdings of coin and currency? To a small extent, perhaps, the answer is to be found in the fact that many people, not under-

standing commercial banking, assume that deposits are backed dollar for dollar by bank holdings of coin and paper money. But this is not an important part of the answer today; banking is not now based on deception. Two facts constitute the answer: (1) Deposits offer certain advantages to their owners, and (2) under normal conditions people believe that banks will be able to keep their deposits convertible into coin or currency because there will be no general demand for such redemption.

We have already noted the special advantages of checking deposits to their holders.¹ We found that (1) they are not so liable to theft or loss as other types of money, (2) they are a means of payment that can be transported in large amounts over long distances at negligible cost, (3) checks against them can be written for the exact amount of the payment to be made, thereby obviating the necessity of making change and counting bills and coins, and (4) endorsed checks are a convenient receipt for payment. In addition, people often hold bank deposits in order to increase their chance of securing loans from a bank. For all these reasons checking deposits are more convenient for many uses than other types of money and are therefore preferred. Thus, banks can normally expect that, although they are obligated to pay all their deposits on demand, no widespread demand for payment will be made at any one time. In fact, cash withdrawals from banks are usually largely offset by cash inflows, net inflows or net outflows of cash merely reflecting the decreased or increased need for coin and paper money for payroll and retail trade purposes. We shall see later, however, that the situation is far different in periods of crisis.

OPERATIONS INCREASING AND DECREASING DEPOSITS OF A COMMERCIAL BANKING SYSTEM

To clarify further the nature of commercial bank operations, let us construct a banking system and note the effects

¹ See pp. 51-52. It must be recognized, however, that the recent tendency of banks to levy service charges has reduced the attractiveness of checking accounts to some extent.

of each type of transaction on bank assets and bank liabilities. In this section we shall assume that there is only one bank in the system or that our balance sheet is a composite balance sheet for all the banks in the system. The position of an individual bank in the system will be discussed later.

Creation of Deposits by a Banking System

Let us suppose that enterprisers decide to form the XYZ Bank, Inc., with \$1 million par value of capital stock which is to be sold at par and paid for with coin or currency. As soon as the stock is paid for, the bank's balance sheet will appear as follows:

XYZ BANK BALANCE SHEET

<i>Assets</i>		<i>Liabilities</i>	
Cash	\$1,000,000	Capital stock	\$1,000,000

At this stage all of the bank's assets are in cash and all of its liabilities (all the claims against it) are owed to its stockholders. However, the bank must have land, buildings, and equipment with which to carry on its business; let us assume that it acquires these for \$500,000, giving the sellers deposit credits for that amount. The effect of this transaction is to add \$500,000 to the bank's assets under the heading of real estate and equipment, and to add an equal amount to its liabilities under the heading of deposits. The balance sheet will now appear as follows:

XYZ BANK BALANCE SHEET

<i>Assets</i>		<i>Liabilities</i>	
Cash	\$1,000,000	Capital stock	\$1,000,000
Real estate and equipment	<u>500,000</u>	Deposits	<u>500,000</u>
Total	<u>\$1,500,000</u>		<u>\$1,500,000</u>

This shows that bank deposits can be created by banks giving them in exchange for real goods or services.

Let us suppose that holders of cash, wanting the convenience of checking deposits, exchange \$500,000 of their coin

and paper money for a deposit at the bank. The effect will be to increase by this amount the bank's assets in the form of cash and its liabilities in the form of deposits, so that its balance sheet will appear as follows:

XYZ BANK BALANCE SHEET

<i>Assets</i>		<i>Liabilities</i>	
Cash	\$1,500,000	Capital stock	\$1,000,000
Real estate and equipment	<u>500,000</u>	Deposits	<u>1,000,000</u>
Total	\$2,000,000		\$2,000,000

Thus, bank deposits can be created by a net deposit of cash with the banks. It must be noted that such a transaction by itself does not effect a net increase in the supply of money; the increase of deposits is offset by an equivalent decrease in the coin and paper money in circulation. We shall see later, however, that such deposits of cash do increase the ability of banks to create deposits through their lending and investing operations.

The bank does not yet have any earning assets. Let us suppose that to remedy this condition the bank buys 4 million dollars' worth of government or corporation bonds or real-estate mortgages, giving the sellers deposit credits in return. These securities are entered on the asset side of the balance sheet under the heading of investments. They may be purchased directly from the issuing debtors or from people or firms who previously held them. But regardless of the nature of the sellers, the effect of the bank purchase is to increase by \$4 million both its assets in the form of investments and its liabilities in the form of deposits. This is reflected in its balance sheet.

XYZ BANK BALANCE SHEET

<i>Assets</i>		<i>Liabilities</i>	
Cash	\$1,500,000	Capital stock	\$1,000,000
Real estate and equipment	500,000	Deposits	5,000,000
Investments	<u>4,000,000</u>		
Total	\$6,000,000		<u>\$6,000,000</u>

This transaction exemplifies the fact that banks can and do create deposits by purchasing long-term credit instruments that are usually called investments.

The bank is also likely to make short-term loans, taking as evidenced promissory notes or acceptances. Let us suppose that it lends \$6 million in this way, giving deposit credits in return. The result will be to increase by this amount both its assets in the form of *loans and discounts* and its liabilities in the form of deposits. This is shown in the following new balance sheet.

XYZ BANK BALANCE SHEET

<i>Assets</i>		<i>Liabilities</i>	
Cash	\$ 1,500,000	Capital stock	\$ 1,000,000
Real estate and equipment	500,000	Deposits	11,000,000
Investments	4,000,000		
Loans and discounts	6,000,000		
Total	<u>\$12,000,000</u>		<u>\$12,000,000</u>

We can now summarize our findings as to the principal ways in which deposits are created in the banking system as a whole. In the balance sheet shown just above, deposits have risen to \$11 million. These have been created as follows:

Type of Transaction	Amount of Deposits Created
By bank purchases of short-term promissory notes and acceptances	\$ 6,000,000
By bank "investments"	4,000,000
By the net "deposit" of cash with the bank	500,000
By bank purchases of real estate and equipment	500,000
Total	<u>\$11,000,000</u>

As indicated by this example, most bank deposits are created by being given by the banks in exchange for the debts of others, whether these debts are long term, short term, or intermediate term, and whether they are acquired directly

from the debtors or from others who previously held them. Moreover, deposits created in this way are *net* additions to the money supply; their increase is not offset by any decrease in other types of money. By these exchange operations banks *monetize debt*; they buy debts which are not generally acceptable as money, either because the debtor is not well enough or favorably known or because the debt is payable only after a period of time, and in return issue demand deposit debts that are generally acceptable as money. For this function of creating monetized debt the banks receive interest on the debts that they acquire.

Banks also create deposits that are a net addition to the money supply by giving them in exchange for real goods or services; in our example the banks purchased real estate and equipment with new deposit credits. But only a small part of our checking deposits originated in this way.

Bank deposits are also created by being given in exchange for coin and currency. Three principal points about this method of creating deposits should be emphasized. (1) Contrary to general opinion, most deposits are not created by net flows of coin or currency into the banks. (2) The creation of deposits in this way does not directly increase the total money supply, because the rise in deposits is offset by an equal decrease in the coin and currency in circulation. (3) Net flows of cash into the banks often permit further increases of deposits by adding to bank reserves and enabling banks to expand their deposits by making additional loans and investments.

Reduction of Deposits by a Banking System

Total bank deposits are decreased by operations which are the reverse of those that increase deposits: (1) by decreases of bank loans and investments, (2) by the sale of real goods or services by the banks in exchange for deposits, and (3) by net withdrawals of coin and currency from the banks. To illustrate these principles, let us suppose that these developments occur after the banks have reached the position indicated in the last balance sheet shown above.

Suppose that the banks reduce their total loans and dis-

counts by \$3 million. There may be various reasons for such a decrease. The banks may come to distrust their debtors and may require payment. Or the debtors may voluntarily pay loans in this amount and the banks may be unable to find new lending opportunities or be unwilling to replace them under existing conditions. But whatever the reason for the retirement of bank loans, the payers or buyers of the loans from the banks are likely to pay the banks by reducing bank deposits. For example, if you pay a bank loan or buy short-term paper from a bank, you are likely to make payment by writing a check on your bank deposits. On receiving the check, the bank will deduct its amount from your deposit claims against it. Thus, the reduction of bank loans and discounts will have the following effects on the banking system's balance sheet:

<i>Assets</i>		<i>Liabilities</i>	
<i>Decrease</i> loans and discounts	\$3,000,000	<i>Decrease</i> deposits	\$3,000,000

In this way banks reduce their own debts by reducing their holdings of the short-term debts of others.

The same principle applies to reductions of bank holdings of investments. Suppose that banks reduce their holdings of bonds and mortgages by \$2 million, either by selling them or by receiving payment from debtors. In either case the banks are likely to be paid with checks drawn on deposits with them. When the amounts of these checks have been deducted from deposits, the effects on the banks' balance sheets will be as follows:

<i>Assets</i>		<i>Liabilities</i>	
<i>Decrease</i> investments	\$2,000,000	<i>Decrease</i> deposits	\$2,000,000

Deposits can also be reduced through the sale of real goods or services by the banks in exchange for checks drawn against deposits with them. For example, if the banks sell \$200,000 worth of real estate in exchange for checks drawn on themselves, deposits will be reduced by that amount. The effects on the banks' balance sheet will be:

<i>Assets</i>		<i>Liabilities</i>	
<i>Decrease</i> real estate, equipment, etc.	\$200,000	<i>Decrease</i> deposits	\$200,000

Net withdrawals of coin and currency from the banking system also tend to decrease deposits, for such cash is usually given by the banks in exchange for checks drawn against deposits with them. For example, the effect of a \$100,000 net withdrawal of cash or currency from the banks will be:

<i>Assets</i>		<i>Liabilities</i>	
<i>Decrease</i> cash	\$100,000	<i>Decrease</i> deposits	\$100,000

Summary of the Creation and Destruction of Deposits by the Banking System

We have already indicated that though the banking system can and sometimes does create and destroy deposits by buying and selling real goods and services, modern banks do not engage to any great extent in such operations. This leaves two major factors that increase and two major factors that decrease deposits in the commercial banking system. These are:

Major Factors Increasing Deposits	Major Factors Decreasing Deposits
1. Increases of bank loans and investments.	1. Decreases of bank loans and investments.
2. Net inflow of cash to the banks.	2. Net outflow of cash from the banks.

We shall many times emphasize the importance of these major factors. It should be remembered, however, that there are other factors that affect the volume of demand deposits to a lesser extent. Only three of these are important enough to be mentioned. The first—purchases and sales of real goods and services by banks—has already been noted. The second is the transfer of deposits between central banks and commercial banks. Suppose, for example, that the federal government has a \$1-million deposit with the Federal Reserve Bank of New York and that it transfers this amount by check to a com-

mercial bank or to a depositor at a commercial bank. Deposits at commercial banks are thereby increased by \$1 million. Commercial bank assets are also increased by the same amount, the banks receiving new assets in the form of deposit claims against the Federal Reserve banks. On the other hand, deposits at the commercial banks are decreased by transfers of deposits from them to central banks. For example, if the government deposits with the Federal Reserve banks 1 million dollars' worth of checks drawn on the commercial banks, the latter will experience a decrease in deposits of that amount and also a decrease in their assets in the form of their deposit claims against the Federal Reserve banks.

The third factor affecting the volume of demand or checking deposits in the banking system is the transfer of deposits between the categories of demand deposits and "time" or "savings" deposits. As we have already noted, many commercial banks also issue debts which are payable not on demand but only after the expiration of a period of time. Some of these time or savings deposits are payable only at the end of a stipulated period after they are created—30 days, 60 days, 90 days, and so on. Others are payable a certain length of time after the depositor indicates his desire for payment; for example, they may be payable 30 days after notice. Checking deposits can be decreased by transfers to the time deposit category. For example, you may write a check on your demand deposits and deposit it with the bank to secure a time deposit. This reduces demand deposits and increases time deposits by an equal amount. On the other hand, you may convert your time deposit into a checking deposit after due notice. This does not change total bank deposits, but it shifts some of them into the checking deposit category. We shall have occasion to refer again to these three smaller factors that affect the volume of checking deposits, but we must not let them detract from our emphasis on the volume of loans and investments and cash inflows and outflows as major determinants of the supply of demand deposits. And we must not forget that bank loans and investments are the principal cause of fluctuations in the supply of checking deposits.

FACTORS DETERMINING THE VOLUME OF CHECKING DEPOSITS THAT A BANKING SYSTEM CAN CREATE

We have seen that banks create money in the form of checking deposits by making loans and investments. These loans and investments acquired by the banks yield an income. The purpose of a commercial bank, from the point of view of its owners, is to make profits; in fact, bankers usually want to maximize their profits. Why, then, do not the banks buy up all the debt instruments available in the entire economy and monetize them by issuing checking deposits in exchange? Why should the banks stop with monetizing all the debt instruments that they can induce governments, corporations, and individuals to issue? Why should they not proceed to buy up great quantities of real goods and services, issuing demand deposits in return? Such a procedure would appear profitable, for the banks receive interest or other income from the assets that they acquire and they do not ordinarily pay interest on checking deposits. Such an unlimited inflation of the money supply would be a real possibility if no one ever required the banks to redeem their deposits in coin or currency and if there were no other restraints on bank lending and investing operations.

But it must be remembered that banks are under obligation to redeem their demand deposits in coin or currency at the request of their creditors. Inability to meet these demands means failure for the banks. Therefore, even in the absence of legal reserve requirements, banks will, if they are prudent, try to keep available enough coin and currency, or what they consider to be its equivalent, to meet all likely demands for cash. Such holdings are usually referred to as *primary reserves*; their composition will be discussed later. Let us suppose that a certain banking system has come to believe that a reserve equal to less than 10 per cent of its deposits is too small to be "safe." Such a banking system is not likely to expand the amount of its deposits to more than 10 times the volume of its available reserves; to do so would reduce the percentage of reserves to deposits below what it considered

to be a safe level. Thus, the ability of a commercial banking system to expand deposits is limited by (1) the dollar amount of its reserves, and (2) the required ratio of reserves to deposits. A \$1-million reserve will support \$10 million of deposits if the minimum "safe" reserve ratio is considered to be 10 per cent. It will support only \$5 million of deposits if this ratio is 20 per cent.

This practice of maintaining reserves equal to a certain proportion of deposits acts in two ways to limit the volume of deposits that banks can create. In the first place, increases in the volume of deposits lower the ratio of reserves to deposits even if the dollar amount of the reserves remains constant. After a time, therefore, the banks have to cease expanding their deposits unless they can acquire proportional increases in their reserves. In the second place, large expansions of deposits may reduce the dollar volume of bank reserves. The expansion of deposits, by adding to the total money supply, is likely to be accompanied by an increased volume of business, rising prices, rising payrolls, and rising retail trade, so that depositors will withdraw some coin and currency from the banks to carry on these transactions. Such cash outflows have the effect of reducing bank reserves; they are often called the *internal drain* or the *domestic drain* of cash from the banking system. If the expansion of bank deposits is extensive and the country is on a gold standard, a *foreign drain* may also occur as prices in the country tend to rise above those abroad and as gold is withdrawn from the banking system for export.

Though these factors prevent unlimited expansions of checking deposits even when a banking system does not operate under legally fixed minimum reserve requirements, it must not be inferred that the maintenance of customary minimum reserves assures the creation of exactly the "right" amounts of money. The volume of deposits can still fluctuate in socially undesirable ways.

In most countries the amount of reserves to be maintained relative to deposits is left largely to the judgment of the banks. This was true in the early history of banking in the United States, but so great were the abuses that our banks now operate under legally prescribed minimum reserve requirements.

Our laws specify not only the minimum quantity of reserves that must be held relative to deposits but also the form of these reserves. We shall see later that our monetary authorities—the Federal Reserve System and the Treasury—exercise most of their control over the quantity of commercial bank credit through their ability to control (1) the dollar volume of commercial bank reserves, and (2) the height of the legally required minimum ratio of reserves to deposits. The remainder of our discussion of the limitations on the volume of bank credit will assume that minimum reserve requirements are set by law.

Because of their great variety in different countries and at different times, it is difficult to define “reserves.” At first they were made up largely of coin and currency held in the banks’ vaults. This meant, however, that reserves yielded no monetary return, so the banks began to search for an asset that would yield a return and still be “as good as cash” for the purpose of meeting depositors’ demands. Thus, a bank sometimes counted as “reserves” its deposit claims against other commercial banks, reasoning that it could at any time get coin or currency in exchange for these deposits. But the banks that acted as “depositories of reserves” seldom held more than a small percentage of cash behind their deposits, with the result that they were unable to supply cash to their depositors if demands for cash were large. Such “reserves” were not as good as cash for meeting a general demand for coin or currency. Banks have also at times counted as part of their “reserves” their holdings of certain high-quality readily marketable securities, such as bank acceptances and short-term government securities, reasoning that these were “as good as cash” because they could be sold without delay and without loss whenever the bank needed coin or currency. Though this logic was valid for an individual bank or a small group of banks in need of coin or currency, it was far from valid when the banking system as a whole tried to sell its paper. The market for such paper virtually disappeared in situations of this sort.

Our banking laws now determine both the form and the minimum amount of commercial bank reserves that must be

held. Commercial banks that are members of the Federal Reserve System—and they account for the major part of bank assets in this country—must hold their legal reserves in the form of deposits at the Federal Reserve banks. Non-member banks hold their reserves in various forms. The height of the legal minimum ratio of reserves to deposits varies with classes of banks, as we shall see later, but it has recently averaged around 20 per cent. That is, the commercial banks may have about \$5 of demand deposits for each \$1 of reserves in the form of deposits with the Federal Reserve banks. Federal Reserve authorities can by administrative action vary the height of the minimum reserve-deposit ratio, thereby affecting the maximum amount of deposits that the commercial banks can create on the basis of each dollar of their reserves.

The formula for determining the maximum volume of demand deposits that a commercial banking system can have outstanding at any time is:

$$D = A \cdot \frac{1}{R} \text{ or } D = \frac{A}{R}$$

where D = the maximum amount of demand deposits that the banking system can have outstanding;

A = the dollar amount of reserves available to the banking system;

R = the minimum percentage ratio of reserves to demand deposits.

Thus, if $A = \$1,000,000$ and $R = 10$ per cent, the maximum amount of demand deposits (D) that can be outstanding is \$10,000,000. If $R = 20$ per cent, $D =$ only \$5,000,000.

This formula can also be used to show the potential increase of demand deposits in the banking system in response to an increase of its reserves *if the process of expansion does not lead to any net withdrawal of cash from the banking system*. In this case the banks can expand their deposits by an amount equal

to $\frac{1}{R}$ for every \$1 increase in their reserves. Thus if $R = 20$ per cent the banking system can create \$5 of additional deposits for every dollar added to its reserves.

It must be emphasized, however, that this formula for deposit expansion applies only if the process of expanding bank

credit does not lead to net withdrawals of cash from the banking system. If the expansion of deposits is accompanied by an increase in payrolls and retail trade, the expansion possibilities for bank deposits are likely to be reduced somewhat, for some of the increased reserves will be drained off to supply the increased need for coin and currency in circulation. The extent to which the potential expansion of deposits will be reduced depends on the extent of the cash drain from the banking system that accompanies the deposit expansion. The general formula for determining the potential expansion of bank deposits on the basis of a given increase in bank reserves is:

$$\Delta D = \frac{\Delta A}{R + C}$$

where ΔD = the potential increase of deposits in dollars;

ΔA = the dollar increase of reserves for the commercial banking system;

R = the minimum percentage ratio of reserves to deposits;

C = the drain of cash from the banking system induced by the expansion of deposits expressed as a percentage of the increase of deposits. Thus, the dollar drain of cash is $\Delta D \cdot C$.

This formula is derived in the following way. All the increase in reserves (ΔA) is available for backing new deposits ($\Delta D \cdot R$) and for meeting net cash drains from the banking system ($\Delta D \cdot C$). Thus,

$$\Delta A = \Delta D \cdot R + \Delta D \cdot C$$

or

$$\Delta A = \Delta D(R + C)$$

or

$$\frac{\Delta A}{R + C} = \Delta D$$

To show how the cash drain reduces expansion possibilities, let us assume that $R = 20$ per cent, and that ΔA , the increase of reserves, is \$1. In the absence of any cash drain, the potential expansion (ΔD) is $\frac{\$1}{.20 + 0} = \5 . If, however, a cash

drain equal to 10 per cent of the increase of deposits is induced, the deposit expansion possibility becomes $\Delta D = \frac{\$1}{.20 + .10} = \frac{\$1}{.30} = \$3.33$. If the induced cash drain were equal

to 15 per cent of the increase in deposits, the potential expansion would be reduced still more. In this case, $\Delta D =$

$$\frac{\$1}{.20 + .15} = \frac{\$1}{.35} = \$2.85$$

This multiple expansion of deposits on the basis of a given addition to the reserves of the banking system is a highly important factor that we must constantly bear in mind. We shall find that it is especially important in monetary control.

It is equally important to note that a net loss of reserves by the banking system can necessitate a multiple contraction of deposits. Let us suppose that a banking system operating under 20 per cent minimum reserve requirements loses \$1 million of its reserves at a time when it has been utilizing its reserves fully. To restore the 20 per cent ratio of reserves to deposits the banks will have to retire enough loans and investments to reduce their deposits by \$5 million. Any smaller reduction will leave them with a reserve deficiency. The lower the ratio of reserves to deposits the greater will be the multiple of contraction. For example, if the minimum reserve ratio is 10 per cent and the banks lose \$1 million of reserves, they may have to contract deposits by \$10 million to restore their reserve ratio. In short, the principles outlined above in connection with a multiple expansion of deposits following an increase in bank reserves apply as well to the multiple contraction of deposits resulting from a decrease in bank reserves.

If the deposit contraction following the loss of reserves does not induce a net inflow of cash into the banking system, the amount of deposit contraction required—assuming the banks had no excess reserves when the reserve loss occurred—will be:

$$\Delta D = \frac{\Delta A}{R}$$

where ΔD = the necessary contraction of deposits in dollars;

ΔA = dollar amount of reserves lost;

R = the percentage minimum ratio of reserves to deposits.

In some cases the process of contracting deposits reduces pay-rolls and retail trade and induces a flow of cash into the bank-

ing system, thereby reducing somewhat the amount of contraction necessary. In such a case, the formula for multiple contraction in response to an initial loss of reserves is:

$$\Delta D = \frac{\Delta A}{R + C}$$

ΔD = the necessary contraction of deposits in dollars;

ΔA = the dollar amount of reserves initially lost;

R = the percentage minimum ratio of reserves to deposits;

C = the inflow of cash to the banking system induced by the contraction of deposits, expressed as a percentage of the deposit contraction. Thus the dollar cash inflow is $\Delta D \cdot C$.

The multiple contraction of deposits in response to a loss of reserves is a highly important factor in our monetary system. It goes far toward explaining the extent of contractionary results following losses of bank reserves through gold exports and cash withdrawals from the banking system. It is also the basis of many monetary controls exercised by monetary authorities; by reducing the dollar volume of bank reserves or by raising reserve requirements the authorities can force the banks to contract their credit.

Actual and Potential Expansion of Bank Credit

The discussion above related to the maximum potential expansion of deposits. But does the banking system expand its loans and investments until the ratio of reserves to deposits has been reduced to the legal minimum? The incentive to do so is a profit incentive; to hold reserves in excess of legal requirements is to fail to expand earning assets to the maximum and to sacrifice income that might be earned. In normal times, therefore, the banking system tends to lend and invest up to the maximum amount permitted by its reserves. There are other times, however, when banks prefer to sacrifice current earnings and to hold excess reserves. Fear that depositors have lost or may soon lose confidence in the banks and may make large cash withdrawals, lack of faith in the ability of borrowers to repay, fear of declining bond prices, unwilling-

ness to accept low interest rates—any of these may cause banks to fail to lend up to the maximum of their ability.

The fact that banks may not lend up to their maximum ability at all times must be borne in mind by the student of money. In the first place, it tends to aggravate fluctuations in the money supply, for the banks are likely to “boom the boom” by lending as much as their reserves will permit during periods of prosperity, and then “depress the depression” by failing to create as much money as their reserves would permit in periods of reduced employment and lower income. And in the second place, it limits the ability of monetary authorities to arrest a contraction and to induce an expansion of the money supply through actions that increase the dollar volume of reserves available to the banks or that reduce legal reserve requirements. The banks may continue to hold excess reserves idle instead of using them as a basis for creating additional deposits by making more loans and purchasing more securities.

INDIVIDUAL BANKS IN THE BANKING SYSTEM

Our discussion up to this point has related to the banking system as a whole and to its ability to expand deposits by several times any addition to its reserves. But we must remember that our commercial banking system is made up of not one bank but of more than 14,000. These are spread from one end of the country to the other and range in size from the gigantic Chase National Bank of New York to the small institutions in agricultural villages. Because of this multiplicity of banks, some of our statements relating to the operations of the commercial banking system as a whole are not equally applicable to the operations of an individual bank in the system. This is primarily because of the shift of funds from one bank to another within the system. Each bank receives funds from the other banks by receiving “on deposit” many checks drawn on other banks in the system. And each bank loses funds to other banks in the system when checks that are drawn on it are deposited with the other banks. At

times a bank's losses and gains of funds may balance. But at other times a bank may suffer sizable net losses of funds to the other banks or enjoy sizable net gains from them.

To illustrate this point, let us consider the position of the Excelsior State Bank. Its deposits and assets are increased when deposits are transferred to it from other banks. For example, suppose that you deposit with this bank a \$1000 check drawn by John Adams on the First National Bank of Keokuk. The Excelsior State Bank will experience a \$1000 increase in its deposits and the First National Bank of Keokuk an equivalent decrease in its deposits. The Keokuk Bank must pay \$1000 to the Excelsior Bank, which it will probably do by transferring to it an equivalent deposit credit at a Federal Reserve bank. The effects of this entire transaction on the balance sheets of the two banks will be as follows:

EXCELSIOR BANK			KEOKUK BANK		
<i>Assets</i>	<i>Liabilities</i>		<i>Assets</i>	<i>Liabilities</i>	
Increase de-	Increase		Decrease de-	Decrease	
posits at	de-		deposits at	de-	
Federal	posits	\$1000	Federal	posits	\$1000
Reserve \$1000			Reserve \$1000		

It will be noted that the total assets and deposits in the banking system as a whole remain unchanged, but that they are redistributed among the banks in the system. On the other hand, if you write a \$500 check on your deposit at the Excelsior Bank and give it to someone who deposits it at the Hibernia National Bank of New Orleans, deposits at the Excelsior Bank will be decreased by \$500, deposits at the Hibernia will be increased by \$500, and the Excelsior Bank will have to pay \$500 to the Hibernia Bank.

These interbank transfers of funds must be borne in mind for at least two reasons. In the first place, they make the "liquidity problem" of an individual bank very different from that of the commercial banking system as a whole. The system as a whole suffers drains only when there are net withdrawals from it of currency, coin, and gold. But an individual

bank must be able to meet not only its customers' demands for coin and currency, but also its payments to other banks as they receive on deposit checks that are drawn on it. In the first instance a bank usually pays other banks by transferring to them some of its reserve deposits in a Federal Reserve bank. But if these payments reduce its reserves below the required level the bank may have to sell some of its other assets in order to secure funds—usually at the expense of other banks—with which to replenish its reserves. This point will be discussed in more detail later.

In the second place, because of these interbank transfers of funds an individual bank cannot, upon receiving an initial addition to its reserves, increase its loans, investments, and deposits by a multiple amount. That the commercial banking system as a whole can do so we have already seen. But this is not true of an individual bank. When it creates deposits by making loans or purchasing securities, an individual bank is likely to lose reserves to other banks as those to whom it lends or from whom it buys securities write checks on their deposits with it and pay them to depositors at other banks in the system. These recipient banks, in turn, receive additions to their reserves, create deposits by making loans or purchasing securities, and lose deposits and reserves to still other banks. It is in this way that a net addition to reserves entering the system through one bank is spread through the banking system; consequently the total expansion of bank loans, investments, and deposits is the work of not one bank but many.

Table 14 shows how additional reserves entering the system at one point are spread through the banking system and how they permit a multiple expansion of deposits by the system as a whole. For the sake of simplicity we assume (1) that the first bank receives a \$10-million addition to its reserves through the deposit of a government check drawn on a Federal Reserve bank, (2) that all the banks operate under 20 per cent reserve requirements, and (3) that all the additional deposits created by loans are checked out to other banks and that an equal amount of reserves must be paid over to the transferee banks.

After receiving the \$10-million addition to its deposits and

reserves, the first bank sets aside the necessary \$2-million addition to its reserves and creates \$8 million of new deposits by making new loans or by purchasing additional securities. These loan-created deposits of \$8 million are checked out to the second bank and an equal amount of reserves paid over to it, so it sets aside the necessary \$1,600,000 addition to its reserves and creates \$6,400,000 of new deposits by making

TABLE 14. DEPOSIT EXPANSION ON NEW RESERVES BY A BANKING SYSTEM²

	Additional Deposits Received	Additional Re- serves Retained Against Deposits Received (20%)	Additional Loans Made (80%) (The deposits created by these loans are all checked out to the next bank)
1st bank	\$10,000,000	\$ 2,000,000	\$ 8,000,000
2nd bank	8,000,000	1,600,000	6,400,000
3rd bank	6,400,000	1,280,000	5,120,000
4th bank	5,120,000	1,024,000	4,096,000
5th bank	4,096,000	819,200	3,276,800
6th bank	3,276,800	655,360	2,621,440
7th bank	2,621,440	524,288	2,097,152
8th bank	2,097,152	419,430	1,677,722
9th bank	1,677,722	335,544	1,342,178
10th bank	1,342,178	268,436	1,073,742
Total, first ten banks	\$44,631,292	\$ 8,926,258	\$35,705,034
Other banks in turn	5,368,708	1,073,742	4,294,966
Grand total	\$50,000,000	\$10,000,000	\$40,000,000

loans and investments. These deposits and an equal amount of reserves are paid over to the third bank, which continues the expansion, as do the other banks in their turn. Thus, the \$50-million expansion of deposits in the system as a whole—\$40 million of which were created by new loans and security purchases—represents increases at many banks.

The expansion of deposits by each individual bank was small in our example because we assumed that all the loan-created deposits created by any given bank were checked out to other banks. When a larger part of the new deposits remains with the bank that created them by making loans or

² This table is based on that in Board of Governors of the Federal Reserve System, *The Federal Reserve System—Its Purposes and Functions*, 1939, p. 73.

purchasing securities, the multiple of expansion for that bank is larger, because the bank does not lose so much of its reserves to other banks. But the multiple expansion for the system is unaffected.

In a similar way a net loss of bank reserves from the system through one bank or a small group of banks can necessitate a multiple contraction for the system as a whole. Suppose that the first bank loses \$10 million of its reserves through a withdrawal of coin, currency, or gold. If this drain lowers its reserves below the required level it is likely to sell some of its assets to other banks or to customers of other banks, thereby draining some reserves from them in payment. These banks, in turn, sell assets in an effort to regain reserve funds, thereby draining reserves from still other banks. This process will continue until no further contraction of deposits is necessary to restore the legally required reserve-deposit ratio.

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Some Further Aspects of Commercial Banking

ASSETS AND LIABILITIES OF COMMERCIAL BANKS

HAVING SURVEYED THE GENERAL PRINCIPLES OF COMMERCIAL banking, we can now explore more fully the nature of bank operations and some of the problems of commercial banks. It will be convenient to begin our investigation by analyzing the combined balance sheets of the 13,302 operating insured commercial banks in the United States on December 31, 1945. This will enable us to look closely at the various bank asset and liability items and will suggest some of the problems of commercial banking to be discussed later.

Let us analyze first the asset side of the banks' balance sheets, that is, the types and values of the banks' claims against others.

Bank Assets

It will be noted that bank holdings of actual coin and currency are very small—only 1.1 per cent of total assets. "Reserve with Federal Reserve banks" represents the banks' demand deposit claims against the twelve Federal Reserve banks. Banks that are members of the Federal Reserve System must hold all their legally required reserves in this form; and non-member banks frequently do so, though it is not

**ASSETS AND LIABILITIES OF THE 13,302 OPERATING
INSURED COMMERCIAL BANKS IN THE UNITED STATES,
DECEMBER 31, 1945¹**

Assets

		Billions of Dollars	Per Cent of Total Assets	Billions of Dollars	Per Cent of Total Assets
CASH, BALANCES WITH OTHER BANKS, AND CASH ITEMS IN PROCESS OF COL- LECTION	TOTAL			\$ 34.2	21.7
Currency and coin		\$ 1.8	1.1		
Reserve with Federal Reserve banks		15.8	10.0		
Demand balances with banks in the U. S.		10.9	7.0		
Other balances with banks in the U. S.		0.1	—		
Balances with banks in foreign coun- tries		0.1	—		
Cash items in process of collection		5.5	3.5		
U. S. GOVERNMENT OBLIGATIONS HELD	TOTAL			88.8	56.5
Maturing in 5 years or less		47.6	30.3		
Maturing beyond 5 years		41.2	26.2		
OTHER SECURITIES	TOTAL			7.1	4.5
TOTAL SECURITIES				95.9	61.0
LOANS, DISCOUNTS AND OVERDRAFTS	TOTAL			25.8	16.4
Loans to farmers—total		1.8	1.1		
On real estate		0.5	0.3		
Other		1.3	0.8		
Commercial and industrial loans (in- cluding open-market paper)		9.4	6.0		
Consumer loans to individuals		2.4	1.5		
Loans to brokers and dealers in se- curities		3.2	2.0		
Other loans for purpose of purchas- ing or holding securities		3.6	2.3		
Loans on real estate other than farms		4.2	2.7		
All other loans (including overdrafts)		1.2	0.8		
LOANS AND SECURITIES	TOTAL			121.7	77.4
BANK PREMISES, FURNITURE AND FIX- TURES, AND OTHER REAL ESTATE	TOTAL			1.0	0.6
MISCELLANEOUS ASSETS	TOTAL			0.4	0.3
TOTAL ASSETS				\$157.3	100.0

¹ Source: *Annual Report of the Federal Deposit Insurance Corporation for the Year Ended December 31, 1945*, pp. 112-113. The table uses statistics for only the insured commercial banks in order to secure a more detailed breakdown of assets and liabilities. On that date there were also 777 non-insured commercial banks with total assets of \$3,600,000,000.

Liabilities and Capital

		Per Billions of Dollars	Cent of Total Liabili- ties and Capital	Per Billions of Dollars	Cent of Total Liabili- ties and Capital
DEMAND DEPOSITS	TOTAL			\$115.3	73.3
Of individuals, partnerships, and cor- porations		\$72.6	46.2		
Of Federal government		23.8	15.1		
Of states and political subdivisions		5.1	3.2		
Of other banks in the U. S.		12.6	8.0		
Of foreign banks		1.2	0.7		
TIME DEPOSITS	TOTAL			29.9	19.0
Of individuals, partnerships, and cor- porations		29.3	18.6		
Of federal government		0.1	—		
Of states and political subdivisions		0.5	—		
Of other banks in the U. S.	(very small)		—		
Of foreign banks	(very small)		—		
CERTIFIED AND OFFICER'S CHECKS, CASH LETTERS OF CREDIT AND TRAVELER'S CHECKS OUTSTANDING, AND AMOUNTS DUE FEDERAL RESERVE BANKS				2.6	1.7
TOTAL DEPOSITS, CERTIFIED CHECKS, ETC.				147.8	94.0
MISCELLANEOUS LIABILITIES				1.1	0.7
TOTAL LIABILITIES (EXCLUDING CAPITAL ACCOUNTS)				148.9	94.7
CAPITAL ACCOUNTS	TOTAL			8.4	5.3
Capital stock, notes, and debentures		3.0	1.9		
Surplus		3.9	2.8		
Undivided profits		1.3	0.8		
TOTAL LIABILITIES AND CAPITAL				\$157.3	100.0

required by law. Individual banks often hold deposits with other banks in this country. For example, let us suppose that the State Bank of Champaign carries a \$200,000 deposit with the First National Bank of Chicago. This interbank deposit may serve one or more of several purposes. (1) If the Champaign bank is not a member of the Federal Reserve, this deposit may under the state law count as part of its required

reserves. (2) The deposit is a convenient way of holding funds that the Champaign bank does not at the moment wish to employ otherwise. (3) The deposit is useful for making payments. Suppose, for example, that a merchant in Champaign wishes to pay a bill in Chicago with a draft on a Chicago bank. The Champaign bank can draw a draft on its deposit at the First National and sell it to the merchant. (4) The Chicago deposit is useful in clearing and collecting checks. Checks drawn on other banks and deposited with the Champaign bank can be routed through the First National Bank of Chicago for collection and the proceeds credited to its deposit account at the First National. On the other hand, checks received by other banks against the Champaign bank can be collected through the First National and payment on them can be made by deducting from the Champaign bank's account with the First National.

Balances in banks in foreign countries are useful in international transactions. They enable American banks to draw and sell drafts on deposits with foreign banks for the purpose of making payments abroad, and they serve other purposes that will be discussed later. Cash items in process of collection represent checks, promissory notes, and other matured items that the banks own and that are in the process of being collected but on which payment has not yet been received.

Only a few comments need be made concerning the securities, loans, discounts, and overdrafts which make up the great bulk (77.4 per cent) of bank assets. These statistics bolster our earlier statement that bank assets are composed largely of the debts of others, and that these debts are issued by governmental units, corporations, and individuals. Some are long term, others are intermediate term, and still others are short term. A few are payable on demand. Some are loans for consumption purposes, some to finance production and trade in goods and services, and others for purchasing or carrying securities. Especially noteworthy is the large proportion (56.5 per cent) of bank assets in the form of federal debt obligations. Bank assets in this form were much smaller, both in absolute amount and as a proportion of the total, before the marked increase in the federal debt during the great depression and

World War II. We shall have occasion many times to note that the character of bank assets reflects to a marked degree the general economic conditions under which banks operate. In a predominantly agricultural economy banks are likely to hold large amounts of farmers' debts. With the growth of manufacturing and trade, paper issued by industries bulks larger in bank assets. And with the growth of government enterprises and debts, the banks tend to enlarge their holdings of government obligations.

The other categories of bank assets are largely self-explanatory. It is interesting to note, however, how small they are, relative to total assets.

Bank Liabilities

In analyzing bank liabilities, one is immediately struck by the predominance of deposits. Demand or checking deposits make up nearly three-quarters (73.3 per cent) of total bank liabilities. These are used as means of payments by individuals, partnerships, corporations, governmental units, and other banks both here and abroad—in fact, by almost every type of person and organization in the economy. The extent to which “commercial” banks also act as savings banks is indicated by the fact that time deposits made up nearly 20 per cent of their total liabilities at the end of 1945.

The item “Certified and officer's checks, cash letters of credit, and travelers' checks outstanding, and amounts due Federal Reserve banks” is closely related to deposits. Certified checks outstanding represent bank liabilities to pay the holders on demand. For example, suppose that you are to receive payment from Jones but doubt his willingness or ability to pay. You may require payment by certified check; Jones will write a check on his account and have the bank certify it. By such certification the bank guarantees that the signature is good, that the bank has in its possession sufficient funds of the drawer to pay the check, and that it will hold the funds for this purpose. The certifying bank immediately deducts the amount of the check from the drawer's deposit account and the certified check becomes the evidence of the

bank's debt. The certified check disappears from bank liabilities when it is paid, and its amount is then added to deposits at the bank where it is deposited. Officer's checks outstanding serve a similar function. Suppose you insist that Jones pay you with a cashier's check. Jones will write a check on his deposit account and use it to purchase a check drawn by the cashier or some other officer on his own bank. Bank deposits are thereby decreased for the time being, and bank obligations in the form of officer's checks outstanding are increased. When the cashier's check is paid, its amount is again added to deposits. Traveler's checks outstanding are similar in purpose to cashiers' checks. They are usually purchased with checks drawn on deposits; while outstanding they are obligations of banks to pay, and when paid they are retired and an equal amount is added to deposits.

Cash letters of credit outstanding are also demand liabilities of banks and are similar in function to traveler's checks. Suppose that you are going on a trip and want \$2000 in a safe but easily negotiable form. You may write a check on your deposits and buy from the bank a traveler's cash letter of credit, which is the bank's promise to pay drafts drawn on it by other banks that will provide you with money under the letter of credit. Thus, the letter of credit represents the bank's obligation to pay on demand. The nature of the item "amounts due Federal Reserve banks" is self-explanatory; it represents borrowings from the Federal Reserve and the value of other Federal Reserve claims against the banks that have not yet been paid.

The item "capital accounts" represents the value of the owners' claims against the banks. The owners of banks, like the owners of other types of enterprises, have a claim against all the banks' assets that are not owed to other claimants; they are the residual claimants against bank assets. Thus, total bank assets (\$157.3 billion) less total liabilities to others than the owners (\$148.9 billion) leaves the capital account or ownership claims (\$8.4 billion). The residual nature of the ownership claim must be emphasized; the liabilities of the banks to non-owners are fixed in terms of dollars and consti-

tute a prior claim on assets. If the assets of a bank depreciate in terms of dollars, the losses accrue to stockholders (owners) first, and other claimants are protected to the extent of the owners' interest. In this sense the capital account is a sort of guaranty of safety to other claimants against the bank, the adequacy of the guaranty depending on the size of the capital account and the extent to which the bank assets do not depreciate.

We have already seen that the banks' capital accounts at the end of 1945 amounted to \$8.4 billion, or 5.3 per cent of their total assets. About \$3 billion of this was represented by the par value of outstanding stock and other ownership instruments. Another \$3.9 billion was under the heading of "surplus," which in general means the excess of ownership claims (except undivided profits) over the par value of all outstanding shares of stock. By implication this represents amounts, other than the par value of ownership instruments, permanently committed by owners to banking firms. Some of it is "paid-in surplus" which arose through the original sale of ownership securities at more than their par value. For example, if a bank sells for \$150 a share of its stock with a \$100 par value, a paid-in surplus of \$50 is created. Such a practice has been common in banking. "Earned" surplus, on the other hand, represents amounts of earnings retained by the banks and not evidenced by par values of ownership instruments. "Undivided profits" represent profits retained by the banks and not transferred to the surplus account.

SOME PROBLEMS OF COMMERCIAL BANKING

Several commercial banking problems are suggested by our survey of bank assets and liabilities. We found that bank promises to pay fixed dollar amounts to claimants other than owners amounted to nearly 95 per cent of the total value of their assets at the end of 1945; the ownership "cushion" was equal to only a little more than 5 per cent of their assets. Moreover, these bank obligations to pay fixed dollar amounts

were promises to pay either on demand or on very short notice. Demand deposits, which were equal to nearly 75 per cent of assets, are promises to pay legal-tender money on demand, as are certified and officer's checks outstanding, cash letters of credit, and traveler's checks. Even time deposits, which amounted to nearly 20 per cent of assets, are obligations to pay within a few months. In earlier periods banks also issued large amounts of circulating promissory notes (bank notes) which were payable on demand.

But what assets do the banks have with which to meet these obligations that are payable either on demand or on short notice? We found that their holdings of coin and currency are very small, and that their combined holdings of these items, balances with other banks, and cash items in process of collection amount to less than 22 per cent of their assets. The great bulk of their assets are in the form of loans, discounts, and securities, only small amounts of them payable on demand and some of them payable only after a long period of time. This combination of conditions suggests two difficult problems faced by commercial banks: (1) the problem of remaining solvent, and (2) the problem of achieving liquidity. A bank is solvent when the value of its assets is at least great enough to cover all its liabilities except those to its owners; it is insolvent when the value of its assets is insufficient to cover all the non-owner claims against it. By the liquidity of a bank we mean its ability to exchange its assets for money fast enough to meet the demands upon it for payment. Though the problems of solvency and liquidity are closely related, we can separate them for analytical purposes. For example, a bank may not be able to acquire cash quickly enough to meet demands upon it for payment on short notice or without any notice at all, even though the value of its assets would be considerably greater than its liabilities to non-owners if it had ample time in which to sell the assets. On the other hand, an insolvent bank—one whose deposits and bank note liabilities exceed the value of its assets—may continue to operate for a long time if it is not subjected to heavy demands for payment.

BANK SOLVENCY

Although a bank may be able to function for some time after the value of its assets has declined below its liabilities to its creditors, such insolvency is obviously undesirable for several reasons. In the first place, even an impairment of the owners' claims is injurious to the owners, and an insufficiency of assets to meet other liabilities endangers the creditors' claims. And in the second place, such a condition, if it becomes known or even suspected, is likely to lead to immediate demands on the bank for payment and therefore to losses by depositors and other creditors. Regulatory authorities and conscientious bank officials are faced with a difficult decision when a bank's assets fall below its non-capital liabilities. If they close the bank and liquidate its assets under "bankrupt sale" conditions, depositors and other creditors are almost certain to suffer losses, whereas the bank might recover if allowed to continue in operation. On the other hand, if they permit it to stay open despite its unsound condition, its assets may deteriorate even further and the soundest assets may have to be sold to meet the demands of those who first demand payment, leaving only the poorer assets to satisfy remaining claims. The position of the remaining depositors or note-holders after a bank has suffered large drains is often far from enviable.

Regulation of Bank Assets

Many methods have been employed to protect creditors against losses from bank insolvency. The first is to insure that banks acquire only those types of assets that are least likely to decline in price. In the early days of banking in this country, bank officials were allowed a high degree of freedom in determining the types and proportions of the assets that they acquired. So great were the abuses of these powers and so great were the consequent losses to holders of deposits and bank notes that many legal restrictions were placed on the

types of assets that banks may acquire and hold. For example, they are usually forbidden to hold common stocks, except stock in Federal Reserve banks and limited amounts of other stocks acquired through the calling of loans. Bank holdings of real estate other than banking premises are ordinarily either forbidden or limited in quantity. These assets fluctuate too much in value to be considered appropriate assets for banks.

In the second place, the quality of bank assets is to some extent regulated by law and by the administrative actions of supervisory authorities. Attempts are made, with varying degrees of success, to exclude speculative and unsafe bonds, inadequately secured mortgages, and even highly questionable short-term paper.

In the third place, an effort is made to assure diversification of a bank's assets. Limitations are placed on the proportion of assets that may be held in one form—in the form of real-estate mortgages, for example—and also on the amount that may be lent to any one borrower. The principal purpose of such limitations is to enhance the safety of banks by preventing them from putting too many eggs in one basket. Another purpose, however, is to curb favoritism in the granting of loans and to make bank lending facilities more widely available.

In the fourth place, limitations are placed on a bank's loans to its owners, officers, and employees. These loans are doubly suspect. There is great danger that such applications for loans will not be scrutinized as critically as they should be and that the quality of bank assets will suffer. Moreover, it is generally felt that the owners, officers, and employees of banks ought not to enjoy more than their fair share of a bank's limited lending ability at the expense of loans to other qualified borrowers. The definition of a banker as "one who takes care of your money by lending it to his friends" has too often been more than a witticism. Where arm's-length bargaining does not exist, loans are likely to be of doubtful safety and discriminatory as among borrowers.

From the point of view of bank solvency, it is obviously desirable that banks should make only relatively safe loans

and investments. But this objective may conflict with another objective—that of providing adequate loan funds to business. Risk is inevitable in business. If the banks insist on too much safety in lending they may fail to facilitate production and trade as much as is desirable. This is especially evident during periods of distrust when business activity should be bolstered as much as possible and when the banks are likely to emphasize safety in loans. We shall see later that this dilemma of bank safety versus availability of loans in adequate volume is now avoided to some extent by government guarantee of loans or government participation in the risk on loans. By socializing the loan risks, bank safety may be achieved without sacrificing the availability of loans. The success of such plans depends on the wisdom and efficiency of the guaranteeing agencies.

Bank Capital Requirements

Solvency of banks depends not only on the stability of value of their assets, but also on the size of their capital accounts. If these accounts are large relative to bank assets, creditors enjoy an ample cushion of safety; assets must depreciate to a considerable extent before the owners' equities are wiped out and creditors' claims are endangered. But a small decline in asset values will wipe out owners' equities and endanger creditors if capital accounts are small relative to total assets. The securing of adequate bank capital relative to assets has been a difficult problem in American banking history. Many of the early banks engaged in highly dangerous practices. Some of them had only a very small capital, with the result that creditors were injured by even a small depreciation of bank assets. And, to worsen the situation, the banks often made highly risky loans. Other banks had a large nominal capital, the actual value of which was doubtful. For example, promoters would establish a bank with \$100,000 of capital stock, but the stock would be paid for not with money or valuable property but with promissory notes of the owners. This practice would not have been objectionable if the stockholders' debts had been fully collectible, but the stockholders

were too often merely adventurers whose credit worth was uncertain. Even when the owners originally paid for their stock with good coin or currency, they sometimes borrowed it back as soon as the bank was established, giving promissory notes in return; hence the net result was the same as if they had originally paid for the bank stock with their debt instruments. In other cases bank capital was reduced by excessive dividend payments.

To eliminate, or at least reduce these abuses, banks are now subject to numerous legal capital requirements. The federal government and most of the states fix minimum capital requirements that banks must meet before they begin operation. In some cases these requirements set a minimum ratio of capital to assets or to non-capital liabilities. Stock must be paid for with money, and loans by banks to their owners are regulated to prevent deterioration of assets. The conditions under which dividends can be declared are also prescribed in order to prevent a reduction of capital through excessive payments to owners. At one time attempts were made to protect bank creditors by providing "double liability" on bank stock. That is, the owner of a share of stock could be assessed an amount equal to the par value of his stock to meet the claims of bank creditors; he could lose not only the amount of his original investment in the stock but also the amount of the assessment. This method of protecting depositors and other bank creditors has now been largely abandoned. In practice it offered only limited protection, for bank stocks often gravitated into the hands of people who could not pay the assessments levied on them, and the courts proved reluctant to force payment by unfortunate stockholders whose equities had already been eliminated. Moreover, the dangers inherent in double liability interfered during depression periods with the securing of adequate capital funds for banks.

The two general methods described above—enhancing the stability of the value of bank assets and increasing bank capital relative to bank assets—attempt to protect bank creditors by maintaining the solvency of banks. But bank failures have been numerous in this country despite these efforts. This has

led to the introduction of many insurance schemes in which some outside agency, usually sponsored by the government, insures creditors against loss. Several devices of this type were used to insure the safety of bank notes, usually with but limited success. We now have an elaborate insurance system for bank deposits. This problem will be discussed in detail at a later point.

BANK LIQUIDITY

Closely related to the difficult problem of maintaining bank solvency is that of maintaining bank liquidity, by which we mean the ability of banks to meet requests for payment on demand or on short notice. The acuteness of this problem stems from three facts that we have already noted: (1) The great bulk of bank liabilities are payable in legal-tender money on demand or on short notice. (2) By far the larger part of bank assets is in the form of debts that are payable only after a period of time. (3) The banks' outstanding obligations to pay on demand (deposits, notes, etc.) are usually far in excess of the amount of coin and currency existing in the country. Banks expect, of course, that they will not be asked to pay any large part of their obligations during any short period of time, but these hopes are sometimes disappointed and heavy demands for payment do occur. To understand the problems involved in meeting these demands, we must analyze separately the liquidity problem of an individual bank and of the banking system as a whole.

Liquidity of an Individual Bank

An individual bank must be liquid enough to meet two types of demands for payment: (1) demands by its customers for coin and currency, and (2) payments of adverse clearing balances to other banks in the system with which checks and other claims on the individual bank have been deposited. The first demand can be met only with legal-tender coin and

currency; the second can usually be satisfied with coin and currency, checks on the Federal Reserve banks, or checks on other well-known commercial banks. To meet these payments, an individual bank may have recourse to the following sources of funds:

1. *Coin and currency in the bank's vault.* Though a bank may use its cash holdings to meet demands for payment, it usually gets but little help from this source, for these holdings are ordinarily small—not much in excess of day-to-day working requirements. They rarely exceed 2 or 3 per cent of a bank's liabilities.
2. *Legal reserves.* It is usually assumed that a bank can pay out its legal reserves to meet demands on it, but this is not necessarily true. Some reserve laws have provided that the banks must meet their reserve requirements at all times. In these cases the banks' reserves were largely immobilized. Even when the laws provide that reserve requirements must be met on the average over a period of time, such as two weeks, a bank must replenish its reserves if it uses them temporarily to meet drains. Moreover, we must remember that a bank's legal reserves are equal to only a fraction of its deposits. If a bank operating on 20 per cent reserves loses \$100,000 of deposits, its reserve requirements are lowered by only \$20,000 and it must pay the other \$80,000 out of other funds.

Not only the strictness of the laws fixing reserve requirements but also the form of its reserves influences a bank's use of its reserves to meet drains. If, as has sometimes been the case, a bank holds its reserves in the form of coin and currency in its vault, it may be able to use these freely to make payments. In some cases banks have been permitted to include as reserves their deposits in other commercial banks. The usefulness of these as a means of making payments depends on the kind of money that is demanded. These deposits are fully satisfactory if payees will accept checks on other commercial banks. They may even be satisfactory in meeting drains of coin or currency if the depository banks have or can get enough coin or

currency. But there is always the danger that the depository banks will themselves be unable to redeem their deposits in these kinds of money. Hence, most banks now hold their legal reserves in the form of deposits at the Federal Reserve banks. These deposits are wholly acceptable in payment, for the Federal Reserve System can manufacture enough new paper money to redeem them in full. But even so, a bank must meet its reserve requirements against deposits over relatively short periods of time.

3. *Deposit balances with other commercial banks.* As indicated in the preceding paragraph, an individual bank may meet drains by drawing on its deposit claims against other commercial banks, whether or not these are considered legal reserves. If the payees will accept deposits in payment, the effect is merely to redistribute the ownership of deposits in the system. If, however, the payees demand coin or currency, an individual bank can meet demands on it only by draining cash from the other banks—if they can supply it.
4. *Collection of loans or sale of debt instruments to buyers other than central banks.* To assist it in meeting demands for payment, a bank usually holds some assets which it considers its “secondary reserves.” These are debt instruments which it believes it can sell quickly and without loss of value. They are made up of such things as call or demand loans on securities, bank acceptances, short-term government securities, and so on. In addition, a bank can sell its other creditor claims over longer periods but perhaps with greater losses. The liquidity of an individual bank depends to a great extent on the quick salability of its assets to other banks and other buyers. Such sales of assets may to some extent induce a flow of coin or currency into the bank without similar losses by other banks; individuals and corporations paying loans or buying securities may reduce their net holdings of cash to make the necessary payments to the bank. But it must be emphasized that this occurs to only a limited extent. In most cases payment to the individual bank will be made by check, and these

checks will be drawn on other banks. Thus, the individual bank secures funds at the expense of other banks. In many cases the assets sold by the bank will be purchased directly by other banks, so the bank meets its drain by drawing on them.

5. *Sale of assets to and borrowings from Federal Reserve banks.*

A bank may secure funds to meet demands for payment by selling assets to the Federal Reserve banks or by borrowing from them. We shall see later that within wide limits central banks can create and issue new money by purchasing securities and by lending.

Liquidity of the Banking System as a Whole

Our rather extended discussion of the liquidity problem of an individual bank emphasized the extent to which one bank in a banking system meets demands for payment by drawing funds from other banks. It also indicated that a bank should be able to meet demands under normal conditions if it is careful to have in its portfolio a large percentage of highly salable debt instruments which can be sold to other banks or to other members of the economy, thereby enabling the bank to draw funds from other banks in the system. But the problem of liquidity for the banking system as a whole is sometimes much more difficult. To illustrate this, let us suppose that the general public has come to fear that banks in general are in a weak position and cannot meet their obligations to pay in full and on demand. Each depositor is therefore likely to try to withdraw cash before payments are suspended.

When not only one bank but all or most of the banks in the system simultaneously face demands for payment in coin or currency, there are only a few sources of cash with which to meet the drain.

1. *Coin and currency in bank vaults.* This source, as we have seen, is not of much assistance.
2. *Interbank deposits.* This source is of little or no assistance in meeting a general run on the banking system. The Champaign bank may try to meet its problem by drawing

on the First National Bank of Chicago; but if the latter is also facing demands from individual depositors and other depositor banks, it is likely to be in trouble itself.

3. *Deposits by cash by the public.* If the public has lost confidence in them, the banks can hardly expect net deposits of coin and currency.
4. *Calling of loans and sale of bank assets to buyers other than Federal Reserve banks.* This source is likely to offer little assistance. When all or most of the banks face large demands for payment they are hardly likely to be buyers of securities of any kind; virtually all of them will be on the selling side. Moreover, even sales of bank assets to individuals and corporations offer only limited help. Some may pay loans or buy securities from banks by reducing their net holdings of coin or currency, but most of them will do this by writing checks against their deposits. This will reduce the total of deposits outstanding, but it will not supply the banks with coin or currency to be used in meeting demands for payment. And, it must be emphasized, the effect of a widespread calling of loans and selling of assets by the banks is to reduce the money supply in the form of checking deposits, thereby aggravating any existing deflationary trend. By selling assets or calling loans an individual bank may draw cash from other banks. But the banking system as a whole may attract virtually no coin or currency by this means; the result may be merely a ruinous contraction of the total money supply.
5. *Reserves at Federal Reserve banks.* The banks may demand cash at Federal Reserve banks in exchange for deposits there. But reserves are only a fraction of bank deposits, and the banks must continue to meet their reserve requirements. Thus, if the banking system suffers a cash drain of \$1 billion and operates under 20 per cent reserve requirements, the \$1-billion reduction of deposits frees only \$200 million of reserves; the remaining drain of \$800 million must be met from other sources.
6. *Borrowings from and sales of assets to Federal Reserve banks.* The banking system can get cash to meet demands on it

to the extent that the Federal Reserve banks (or other monetary authorities) are willing and able to create additional coin or currency by making loans to banks or buying assets from them. In some cases the Treasury may release idle cash that it holds in its vaults.

In summary, *the banking system as a whole* can obtain cash with which to meet net cash withdrawals only from the following principal sources: (1) From cash drawn from its reserve accounts in the central bank to the extent that its reserve requirements are reduced by the decrease of deposits with the banks. Relief from this source is equal to only a fraction of the reduction in deposits, the amount of the relief depending on the height of the ratio of reserves to deposits. (2) The issue of additional cash by the Federal Reserve System and the Treasury. We shall emphasize many times that in the last analysis the liquidity of the banking system as a whole—its ability to meet its obligations with coin or currency—depends on the extent to which the monetary authorities are able and willing to issue additional cash by buying assets or by lending.

It is especially necessary to point out the fallacy of the idea that *liquidity of the banking system as a whole* can be maintained by having the banks hold "liquid" types of loans and other securities. We have already seen that an individual bank can achieve liquidity by holding assets that are readily salable to other banks or to the customers of other banks, thereby enabling it to draw funds from other banks in the system. But obviously this method of meeting drains is effective only when the demand is limited to one bank or to a minor part of the system. When a major part of the banking system is faced with demands for cash, most of the drain must be met with additional cash that was not previously in the hands of the banking system; usually this must come from the central monetary authority. Thus, the liquidity of the banking system as a whole depends largely on the ability and willingness of the monetary authority to issue new coin and currency; and those bank assets are most liquid which will be purchased by the monetary authority or will be accepted as collateral for loans by this authority.

QUANTITATIVE CONTROL OF THE MONEY SUPPLY

We have already seen that appropriate control of the money supply and of money spendings is highly important to the economic system. One of the most difficult problems in the social control of banking is to secure proper variations in the quantity of money created by banks. In the absence of wise control by a monetary authority, banks are likely to expand the money supply when it should be contracted and to contract it when it should be expanded. Even when they vary the money supply in the right direction, the extent of the change is often inappropriate. Banks ordinarily think of themselves primarily as lenders or buyers of securities and only incidentally as creators and destroyers of money. Moreover, most of their income is derived from earnings on the debt instruments they hold. It is only natural, therefore, that they should lend as much as they can during periods of "good business," both because the demand for loans is great and because loans appear relatively safe. But the resulting increase of money in the form of deposits may be excessively expansionist and socially undesirable. It is equally natural that banks should tend to reduce their loans in periods of "bad business," both because of the decline in the demand for loans, and because of the greater risk of lending large amounts. But the resulting decline in the money supply is likely to depress money spendings, output, and prices still further. This tendency of commercial banks to accentuate expansions and contractions in economic activity is one of the most difficult problems facing monetary authorities, as we shall see later in our discussion of central banking.

COMMERCIAL BANKS AS SOURCES OF LOAN FUNDS

In most of the discussion up to this point we have emphasized the money-creating and money-destroying operations of commercial banks. These institutions create most of our money supply and are directly responsible for most of its

fluctuations. But we must also emphasize the fact that these banks are a major element in the credit market. As an integral part of their money-creating activities they add to the supply of loan funds in the market, for they create money by making loans or by purchasing debt instruments of various kinds and maturities. And in the process of reducing the money supply they reduce the supply of loan funds in the market, for they destroy money by reducing their loans and their holdings of securities. They therefore markedly affect the amount of money offered for loan, the height of interest rates, and the amount spent by borrowers for both consumption and investment purposes.

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Banking in the United States Before 1914

THE PURPOSE OF THIS CHAPTER IS TO TRACE SOME OF THE MAIN trends in American banking history prior to the institution of the Federal Reserve System in 1914. This period will be treated in two general sections: (1) from 1781 to the establishment of the National Banking System in 1863, and (2) from the establishment of the National Banking System in 1863 to 1914. Each period will be further subdivided to bring out important banking developments.

AMERICAN BANKING, 1781-1863

To understand the confusion in American banking in this early period, we must remember the newness of our country and its lack of experience with money, finance, and large-scale industry. The country had had no experience with a well-developed banking system, by far the largest part of the population lived on farms which were largely self-sufficient, all except a few of the cities were small, manufacturing was still in its infancy, and trade occupied a far less important position than it does today. Moreover, the relationship between the federal and state governments was a subject of wide dispute; the Federalists favored centralized controls, whereas the Anti-Federalists hoped to minimize the centralization of

power. The location of the power to charter and regulate banks was a highly controversial subject well into the nineteenth century.

It is also important to remember that bank notes were the principal type of money issued by banks until about the time of the Civil War. Checking deposits were not well suited to a predominantly agricultural country with few towns and slow travel and communication. In fact, during the colonial period the word "bank" meant "a batch of paper money." We need not dwell here upon the small number of "banks" during the colonial period, most of which were short-lived. The first bank of a modern type in this country was the Bank of North America, which was established in Philadelphia in 1782 to aid in financing the Revolutionary War. The Bank of Massachusetts and The Bank of New York were established in 1784. These three were the only incorporated banks in the United States in 1790. There were, however, a few unincorporated or private banks, for under the common law everyone had a right to engage in banking as well as in other types of business. Only later, after 1800, did the states begin to limit banking carried on by unincorporated firms.

The First Bank of the United States, 1791-1811

The first bank to be established under a federal charter was the First Bank of the United States, which in 1791 received a 20-year charter. It had a capital stock of \$10 million, of which \$2 million was subscribed by the federal government with funds borrowed from the bank, the remainder being subscribed by private individuals, some of them residents of foreign countries. Its head office was located in Philadelphia, and it established branches in the other principal cities of the country—Boston, New York, Baltimore, Norfolk, Charleston, Savannah, and New Orleans. It was in fact a nation-wide bank.

This bank seems to have functioned well when compared with the other banks that operated during the first half of the nineteenth century. Its note issues were not excessive; it greatly increased the facility of transferring funds from region

to region; it gave useful service in lending to the government, in acting as government depository, and in transferring government funds; and it acted as a central bank in curbing the note issues of state banks by presenting their notes regularly for redemption. Nevertheless, Congress refused to renew its charter on its expiration in 1811.

Several reasons were given for refusing to recharter the First Bank. (1) Much of the bank stock was owned by foreigners. Some people feared that foreigners would exercise excessive control over our economy through the bank—though foreign stockholders had no vote—and they also argued that money was drained out of the country by the payment of dividends to foreign stockholders. (2) Only “hard money” was good money. A large part of the community was still opposed to paper money of any sort, whether issued by banks or by government. (3) The bank was unconstitutional. The Constitution contained no express provision for bank charters. The Anti-Federalists contended that no such power was even implied and that hence the bank had been unconstitutional from the beginning. Moreover, they feared that it would tend to centralize power in the federal government at the expense of the states, as its foremost proponent, Alexander Hamilton, hoped it would. It was frequently charged, apparently with some justice, that the bank was dominated by Federalists and that it discriminated against Anti-Federalists in making loans. (4) The bank discouraged the growth of state banks. That it curbed the issue of state bank notes by presenting them regularly for redemption is clear. Some elements of the community, including the owners and officers of state banks as well as other proponents of “easy money,” wanted to eliminate the curbing effects of the First Bank. But whatever the deciding motives of Congress in refusing its recharter, the First Bank of the United States expired in 1811.

State Banking, 1811–1816

Freed from the moderating influence of the First Bank and favored by the inflationary financing of the War of 1812, state

banks went on a spree. They grew in number from 88 in 1811 to 246 in 1816, and their note issue rose from \$45 million in 1812 to at least \$100 million in 1817. Virtually all of them ceased redeeming their notes in gold or silver, and their notes depreciated by varying amounts; the notes of many banks became virtually worthless. All the banking abuses that we shall study later appeared during this period. It was largely because of these gross abuses of the banking privilege by state banks and because of the extreme disorder of the monetary system that the Second Bank of the United States was established.

The Second Bank of the United States, 1816–1836

The Second Bank of the United States received a 20-year charter from the federal government in 1816. In many respects it resembled the First Bank, but it was much larger and some of its charter provisions were different. Its capital was fixed at \$35 million, of which one-fifth was to be subscribed by the federal government and paid for with its bonds. The remaining \$28 million was subscribed by individuals, corporations, companies, and states, no one of whom was permitted to subscribe more than \$300,000. At least one-fourth of these private subscriptions had to be paid in gold or silver; the remaining three-fourths could be paid in either specie or securities of the federal government. The bank was governed by a board of directors, of whom five were appointed by the President of the United States and twenty were elected by the private stockholders. The amount of property that the bank could hold was limited to \$55 million, and its debts, excluding deposits but including bank notes, were limited to \$35 million. These limitations did not prevent the bank from being a giant institution as compared with other firms of the period. It established 25 branches to serve all the settled parts of the country.

The Second Bank performed both commercial and central banking functions. As a commercial bank it lent to individuals, business firms, states, and the federal government; it accepted deposits from individuals and business firms as well

as from governmental units; it issued bank notes; it transferred funds from one area to another; and it engaged in foreign-exchange operations. It also performed various functions that are usually entrusted to a central bank. It held government deposits, acted as fiscal agent of the government, and transferred funds from area to area for government account. Moreover, it acted as a regulator of state banks, presenting their notes for redemption, insisting that they redeem their obligations promptly in specie, and in general limiting the amount of credit they created. This was one of the principal purposes for which the Second Bank was created.

By 1833 the Second Bank had become so unpopular with President Andrew Jackson and many of the Jacksonian Democrats that federal deposits were withdrawn from it and placed with selected state banks, and its charter was not renewed on its expiration in 1836. The country was to see no more federally chartered banks until 1863 and was not to have another central banking system until 1914.

To evaluate the success of the Second Bank and the wisdom of Jackson's action in abolishing it is still a difficult task, because most of the contemporary discussions were rabidly partisan, and even some present-day writers are inclined to be apologists for either the bank or Jackson. We shall, however, note some of the reasons for the refusal to recharter the bank. No special attention will be given to charges that it was grossly mismanaged. It is true that mismanagement did appear in its early years and that later the bank performed some of its functions unwisely or at least clumsily. But the principal objections to the bank came from deeper sources.

1. *Unconstitutionality*. Though the power of the strict constructionists had diminished greatly, critics of the bank again alleged that the federal government had no constitutional power to charter a bank. It is unlikely, however, that these people would have raised the question of constitutionality if they had not opposed the bank on other grounds.
2. *Opposition to paper money*. "Hard-money" men like Senator Benton opposed paper money of any kind and favored the exclusive use of gold and silver coin. They denied that

banks could increase the total quantity of money in a country or that they could "quicken trade" and insisted that bank money merely drove out of circulation an equivalent amount of gold and silver.

3. *Opposition by state banks.* State banks, especially those that wanted to follow liberal lending and note-issue policies, were much opposed to the Second Bank. In the first place, the Second Bank brought pressure on them to keep their notes redeemable in specie and to limit the quantity of their notes to the amount that they could redeem at par. This had the obvious effect of limiting state bank earnings. In the second place, the Second Bank competed with state banks in making loans. Not only did it take the business of lending away from state banks but it also reduced interest rates in some areas, for its discount rate was limited to 6 per cent. And in the third place, some state banks, especially those in New York, wanted the large volume of federal government deposits that the Second Bank enjoyed. This opposition by state banks was a potent factor in the Second Bank's undoing.
4. *Opposition by others who favored easy-money policies.* Realizing that the Second Bank tended to restrict the total amount of money created and the total volume of loans extended by banks, many debtors, landowners, potential land speculators, and others who felt they would be benefited by easier money worked for the abolition of the bank.
5. *Opposition to the concentration of financial and economic power.* We have already noted that the Second Bank was a giant institution during the period in which it operated. It held about a third of all the banking assets of the country and was probably larger than any other business firm. Its critics insisted that a free people could ill afford to grant such power to any small group, for with this financial power went the ability to determine the life and death of banks and other business enterprises, the level of employment and prosperity, and even the political freedom of the people. Such critics repeatedly asserted that concentration of economic power in the hands of a few was incompatible with political democracy.

6. *Political activity by the bank.* Though some attempts were made to secure members of both political parties as directors and officers of the bank, it was well known that the large majority of those in control of it were opposed to Jackson and his party. Moreover, some of these men were aggressive in their political activities. It is difficult to discover the extent to which the bank should be blamed for these political activities and the extent to which these activities were merely defenses against earlier attacks made on the bank. But it seems certain that the bank did enter the political arena and that at least some of its branch managers used their lending power to influence votes. The fate of the bank was sealed when its president, Nicholas Biddle, openly but vainly opposed Jackson's reelection in 1832 and made the recharter of the bank one of the principal issues of the presidential campaign. A diplomatic president of the Second Bank might have been able to arrive at a satisfactory *modus vivendi* with the choleric President Jackson. But Biddle was not such a man. "Nicholas Biddle was a man of intense energy, autocratic in temper, and possessing supreme confidence in his own judgment. It was inevitable that he should rule and not merely reign, and the proofs that he did rule are observable everywhere."¹ The inevitable clash between Biddle and Jackson may have greatly altered the entire course of our banking history.

Was President Jackson right in refusing to recharter the Second Bank in 1836? A full answer to this question would require far more space than we can devote to it. Two facts now seem clear, however. In the first place, it is questionable public policy to grant central banking powers to a corporation which is largely owned and controlled by private individuals and corporations, which is operated by the owners primarily for profit, and which as a profit-seeking enterprise has interests in conflict with those of the banks that it regulates. We now recognize that central banking is a governmental or quasi-governmental function that can be properly exercised

¹ Davis R. Dewey, *The Second Bank of the United States*, Senate Document No. 571, Government Printing Office, Washington, 1912, p. 263.

only by institutions whose primary motive is not profits but financial and economic stabilization. A properly managed central bank must often follow policies that will decrease its profits. In the second place, however, it is equally clear that the abolition of the Second Bank without establishing another institution to take over its functions was a major blunder. It ushered in a generation of banking anarchy and monetary disorder.

State Banking, 1836-1863

From the lapse of the Second Bank's charter in 1836 until the establishment of the National Banking System in 1863, our banking system was made up exclusively of private (unincorporated) banks and of banks operating under corporate charters granted by the various states. We shall not discuss the unincorporated banks except to say that as a group they seem to have been neither significantly better nor significantly worse than the incorporated banks as a group. The incorporated banks, operating under widely diverse state laws, varied from fairly good to very bad. Some performed their functions satisfactorily, especially toward the end of the period. At the other extreme, many engaged in practically all the banking abuses known to man.

Prior to 1837 a bank could secure a corporate charter from a state only by a special legislative act. This method of granting bank charters gradually fell into disfavor for several reasons. For example, it injected banks into politics and politics into banks. Loyal members of the political party in power might receive a bank charter, whereas members of the minority party had little chance of success. The controversy over bank charters threatened to corrupt state governments. Legislators were offered large sums of money to grant new charters, and other large sums by existing banks to reject the applications of potential competitors. Furthermore, this method of granting charters often gave monopoly power to the favored banks. This was considered objectionable, both because of its alleged unfairness to those who wished to become bankers and because it was believed to restrict the total

amount of credit granted, thereby impeding the economic expansion of the country.

To remedy this situation, Michigan in 1837 and New York in 1838 enacted "free banking laws." Many, though not all, of the other states later enacted laws of the same general type. These laws ended the practice of granting charters by special legislative act and provided that anyone might secure a corporate charter and engage in banking by complying with the provisions of a general bank incorporation law. Banking was made "free" to all enterprisers who met the specified general requirements. The quality of state banks came to depend upon the appropriateness of these general requirements and upon the effectiveness with which they were enforced. In some states the requirements were strict; banks could issue notes only by depositing with a state official an equivalent amount of high-quality bonds and by meeting adequate capital and reserve requirements. But in more of the states the collateral requirements for notes were hopelessly inadequate, and capital and reserve requirements were virtually meaningless.

The relationships between banks and the states varied widely. At one extreme, the state banks merely received their charters from the state; they secured all their capital from private sources and made any loans that were permitted within the broad framework of the banking laws. At the other extreme, many banks were wholly owned and operated by states. There were all variations between these two extremes. Thus, some banks were owned jointly by the state and by private investors. Others had to pay large sums to the state for the privilege of banking. And still others were permitted to act as banks only if they would lend stipulated amounts to canal companies, railroads, or other enterprises considered meritorious by the state legislature. In a period when "capital" was still scarce, states encouraged and even forced banks to lend large amounts for financing selected projects.

Abuses by the State-Chartered Banks Before the Civil War

Without inferring that all the banks were guilty, we shall now investigate the principal banking abuses during this

period. These abuses were so widespread that they greatly influenced both public attitudes toward banks and subsequent banking legislation. Some of the most serious banking abuses were the following:

1. *Violent fluctuations in the amount of money created by the banks in the form of bank notes and, especially toward the end of the period, checking deposits.* With the transfer of federal deposits from the Second Bank to selected state banks and the removal of the moderating hand of the Second Bank, both the number of state banks and the volume of their credit increased. This is shown in Table 15.

This growth was far from steady, however. The banks would expand rapidly for a time and then undergo severe contraction. The principal expansions and contractions during this period are shown in Table 16, though the data are admittedly imperfect. Business activity and prices fluctuated widely as banks alternated inflationary periods of increased money supplies and liberal loans with periods of shrinking money supplies and reduced loans. The banks' policies were not the sole causes of these fluctuations, but they were unquestionably contributory.

2. *Inadequate bank capital.* Using all the devices that we described earlier, many banks failed to have large enough capital accounts to protect their creditors. Some made no pretense of having adequate capital. Others had a large enough nominal capital, but it was paid for with the promissory notes of the stockholders, many of whom were unable to meet their obligations. Even when bank stocks were fully paid for with gold or silver, stockholders often borrowed back the coin, giving in return their doubtful paper. Furthermore, bank capital was frequently dissipated by excessive dividend payments.
3. *Risky and illiquid loans.* Many of the banks made highly risky and speculative loans without regard for the safety of their creditors, and some lent excessively to their own stockholders and officers. Moreover, many of the loans were highly illiquid. This was especially true of the banks' large loans on real estate, much of which was not in use but was being held for speculative purposes. This combi-

nation of inadequate bank capital and highly risky and illiquid loans could lead to but one result—numerous bank failures and serious losses to noteholders and other bank creditors.

TABLE 15. STATE BANKS, 1834-1861²

Year	Number of State Banks	State Bank Notes Out- standing (In millions)	Deposits at State Banks (In millions)	Total State Bank Notes and Deposits (In millions)
1834	506	\$ 95	\$ 76	\$171
1835	704	104	83	187
1836	713	140	115	255
1837	788	149	127	276
1838	829	116	85	201
1839	840	135	90	225
1840	901	107	76	183
1841	784	107	65	172
1842	692	84	62	146
1843	691	59	56	115
1844	696	75	85	160
1845	707	90	88	178
1846	707	106	97	203
1847	715	106	92	198
1848	751	129	103	232
1849	782	115	91	206
1850	824	131	110	241
1851	879	155	129	284
1852	815	161	137	298
1853	750	146	146	292
1854	1208	205	188	393
1855	1307	187	190	377
1856	1398	196	213	409
1857	1416	215	230	445
1858	1422	155	186	341
1859	1476	193	260	453
1860	1562	207	254	461
1861	1601	202	257	459

4. *Inadequate reserves against notes and deposits.* In some of the state banking laws reserve requirements were either wholly absent or very inadequate, and evasions of existing requirements were widespread. Many banks issued large quantities of notes and deposits with little or no regard for

² Source: Board of Governors of the Federal Reserve System, *Banking Studies*, Washington, 1941, pp. 417-418.

their reserve situation and with little ability to redeem their obligations on demand.

As a result of all these abuses—excessive issues of bank notes, inadequate bank capital, risky and illiquid bank assets, and highly inadequate reserves—bank notes had widely differing values. The notes of some banks were freely redeemed in gold and silver and circulated at their face value. Others

TABLE 16. PRINCIPAL EXPANSIONS AND CONTRACTIONS OF STATE BANK NOTES AND DEPOSITS, 1834-1860³

Period	Percentage expansion (+), or Contraction (-)		
	Bank Notes	Bank Deposits	Total Notes and Deposits
1834 to 1837	+56%	+67%	+61%
1837 to 1843	-60	-56	-58
1843 to 1848	+119	+84	+102
1848 to 1849	-11	-12	-11
1849 to 1854	+78	+107	+91
1854 to 1855	-9	+2	-4
1855 to 1857	+15	+21	+18
1857 to 1858	-28	-19	-24
1858 to 1860	+36	+37	+35

circulated at small but varying discounts; still others circulated at only a small percentage of their face value; and many became completely worthless. A "know your money" campaign would have been an utter failure in this period.

State bank notes in this period may be divided into four main categories: (1) genuine notes of banks still in operation, (2) genuine notes of failed banks, (3) genuine notes whose denominations had been raised, and (4) counterfeits. The genuine notes of banks still in operation varied greatly in value, for around 1860 such notes were issued by nearly 1600 banks operating under the widely diverse laws of some 30 states. Even the banks in a given state varied widely in quality. Some, as we have seen, issued their notes in moderation and redeemed them freely in specie. Others issued notes in great quantity and with virtually no assets behind them and then employed ingenious devices to avoid redeeming

³ Derived from data in Table 15.

them. For example, an enterpriser would secure a bank charter, pledge virtually worthless securities as collateral for a large volume of bank notes, set up a banking "office" in a remote swamp, put the notes into circulation, and use various ruses to keep his location secret. Only later would some innocent recipient of the bank's notes find that they were virtually worthless.

Owing to the slowness of communications, genuine notes often remained in circulation long after the issuing bank had failed, much to the regret of those who accepted them in payment.

The period was a counterfeiter's paradise. Each of the hundreds of banks issued notes of its own design and in many denominations; the notes were made of many kinds of paper, mostly of low quality; the workmanship on the genuine notes was usually poor; and no one could be familiar with all the bank notes outstanding. Under these conditions it was easy to raise the denomination of genuine notes and to issue counterfeits on existent or even nonexistent banks. "Bicknall's Counterfeit Detector and Bank-Note List of January 1, 1839, contains the names of 54 banks that had failed at different times; of 20 fictitious banks, the pretended notes of which are in circulation; of 43 banks besides, for the notes of which there is no sale; of 254 banks, the notes of which have been counterfeited or altered; and 1,395 descriptions of counterfeited or altered notes then supposed to be in circulation, from one dollar to five hundred."⁴ That these conditions had not been remedied by 1858 is indicated by the fact that Nicholas's Bank Note Reporter gave 5400 separate descriptions of counterfeit, altered, and spurious notes. There were 30 counterfeits of the Bank of Delaware notes.⁵

The numerous "counterfeit detectors and bank note reporters," which attempted to warn against counterfeits and to indicate the current values of the various bank notes, were of only limited assistance. Even with their supplements they were often out of date, they were beyond the reach of small

⁴ Raguet, quoted by Horace White, *Money and Banking*, Ginn, Boston, 1896, pp. 403-404.

⁵ *Ibid.*, p. 398.

tradesmen and individuals, and they could not remove the confusion in trade resulting from the fact that the price charged for an article depended on the type of bank note with which payment was to be made.

Though banking abuses during this period were widespread, we must not leave the impression that all state banks were unsound. Some states, notably New York, Massachusetts, and Louisiana, enacted highly protective banking laws and implemented them with bank supervision and examinations. In fact, some of these laws, especially those of New York, contributed much to the legislation establishing the national banking system.

THE NATIONAL BANKING SYSTEM, 1863-1914

In 1863 the federal government again began chartering banks by passing "An act to provide a national currency, secured by a pledge of United States Stocks, and to provide for the Circulation and Redemption thereof." The 1863 law, which contained a large number of imperfections, was replaced by a new law in 1864. This latter is usually referred to as the National Banking Act.

In providing for a new system of national (federally chartered) banks to be owned and operated by private individuals, Congress had two principal motives: (1) to replace the unsound and unsafe state banking system with new banks that would issue safe and uniform currency, and (2) to secure a new source of loans with which to finance the Civil War. Ever since the demise of the Second Bank there had been a widespread demand for banking reform, and many contended that a satisfactory system of note issue could be achieved only with centralized control and uniform notes. This demand was not successful, however, until reinforced by the exigencies of Civil War finance. We have already noted the difficulty encountered in taxing or borrowing enough money to finance that war. Secretary Chase and others believed that they could create an additional market for government bonds by permitting the creation of new banks which could issue notes

only on the basis of their holdings of these securities. Thus, the National Banking System owes its birth to the demand for safer types of bank money and to the financial embarrassment of the Treasury. But it proved more useful as a means of banking reform than as a source of Civil War funds.

Principal Provisions of the National Banking Act

We have already said that the National Banking Act owed much to earlier state banking laws, especially those of New York. The new law provided for "free banking." Anyone meeting the general requirements of the act was to receive a charter and permission to engage in banking. A new office, the Comptroller of the Currency, was created in the Treasury Department to grant charters and to administer all laws relating to national banks. Some of the principal provisions regulating the establishment and operation of national banks were the following:

1. *Capital.* To enhance bank safety, several capital requirements were imposed. Minimum capital requirements, which are the same today, were fixed as follows:

\$ 50,000 in cities of not over 6000 inhabitants.

\$100,000 in cities with from 6000 to 50,000 inhabitants.

\$200,000 in cities with over 50,000 inhabitants.⁶

At least 50 per cent of the subscribed capital had to be paid in before a bank could begin business, and the remainder had to be paid within five months. The stock was subject to double liability. In order to expand the market for government securities, each bank was required to deliver to the Treasury United States registered bonds amounting to not less than \$30,000 or one-third of its capital stock, whichever was larger.⁷ These bonds could be used as collateral for issues of national bank notes.

2. *Regulation of bank loans.* To promote safety and liquidity, many restrictions were placed on bank assets. Each national bank was forbidden to lend on real estate or to lend

⁶ From 1900 to 1933 the minimum capital requirement was only \$25,000 in places with not more than 3000 inhabitants. This was reestablished at \$50,000 in 1933.

⁷ This requirement that national banks buy government securities was modified toward the end of the century and dropped after 1900.

to any one borrower an amount exceeding 10 per cent of its capital stock.

3. *Supervision and examination.* To insure compliance with both the letter and the spirit of the act, national banks were required to supply the Comptroller of the Currency with periodic reports on their financial condition and were made subject to examination by his representatives.
4. *Reserve requirements against notes and deposits.* To enhance bank liquidity and limit the amount of bank money, minimum reserve requirements were specified for both circulating notes and deposits. Banks in reserve and central reserve cities were required to hold reserves of 25 per cent, and banks in other cities 15 per cent, of their outstanding circulating notes and deposits. In 1874 national banks were relieved of the necessity of carrying reserves against their note issues.
5. *Protection to noteholders.* Remembering the sorry record of state bank notes, the framers of the National Banking Act seem to have been determined that national bank notes should be perfectly safe, that they would all circulate at parity with other types of money, and that they would always be freely redeemable. To this end the act provided as follows: (a) These notes could be issued only against United States government bonds deposited with the Comptroller of the Currency, the amount of notes not to exceed 90 per cent of the par value of the bonds or 90 per cent of the market value of the bonds, whichever was smaller. (b) The issuing bank should maintain a redemption fund with the Comptroller equal to 5 per cent of its outstanding notes, though this could be counted as part of the bank's required reserve. (c) In case of refusal by a national bank to redeem its notes, the Comptroller might sell the pledged bonds and use the proceeds to pay noteholders, any remaining claims of noteholders to constitute a first claim against the assets of the bank. (d) No national bank might issue notes in amounts exceeding its capital stock. (e) The total circulation of national bank notes should not exceed \$300 million (this limitation was later revised and was wholly removed after 1875). (f) Each national bank should accept

the notes of every other national bank at par. Thus, every effort was made to insure the safety and parity of value of national bank notes. In these respects the act was successful.

State Banks

It was hoped that the authorization of national banks would induce state banks to take out federal charters and comply with the requirements of the National Banking Act. When it became evident that few state banks were going to do this,

TABLE 17. STATE AND NATIONAL BANKS IN THE UNITED STATES, 1864-1914⁸

Year	State Banks	National Banks
1864	1,089	467
1868	247	1640
1870	325	1612
1880	650	2076
1890	2,250	3484
1900	5,007	3731
1910	14,348	7138
1914	17,498	7518

Congress decided to force the issue by levying a 10 per cent tax on any bank or individual paying out or using state bank notes. It seems clear that the purpose here was to end the issuance of circulating notes by state banks and to force all or most of these banks to become national banks or to cease doing a general banking business. As shown in Table 17, the act did succeed in reducing the number of state banks from 1089 in 1864 to 247 in 1868. After that time, however, state banks again began to expand, and by 1914 they outnumbered national banks by more than 2 to 1.

How were state banks able not only to survive but even to expand greatly in spite of the prohibitive tax on their notes? First and foremost is the fact that note issue had become of much less importance in banking. With the growth of cities and more rapid transportation and communication, people

⁸ Source: Board of Governors of the Federal Reserve System, *Banking Studies*, Washington, 1941, p. 418.

used checking deposits more and more as a means of payment. With the privilege of creating checking deposits a bank could now operate successfully without issuing notes. But why did many banks prefer to operate under state rather than federal charter when national banks also had the right to create deposits? The answer is to be found largely in the fact that many states imposed less rigid restrictions and granted more liberal powers than those contained in the National Banking Act. In general, state banking laws provided lower capital requirements, lower reserve requirements, less supervision by the government, more liberal powers to lend on real estate, greater ability to accept drafts drawn on a bank, and more power to engage in fiduciary activities, such as operating trust departments. This was especially true in the western and southern states, where many of the state banks were located.

Shortcomings of the National Banking System

Though the National Banking System unquestionably raised greatly the general quality of American banking, it became subject to an increasing amount of criticism. Demands for further banking reform swelled during the late years of the nineteenth century and grew still more in the first years of the twentieth, finally ushering in the Federal Reserve System in 1914. Although many aspects of national banks were criticized, the greatest complaint was against their "inflexibility" or "inelasticity." The keynote of the National Banking Act was safety, especially safety of national bank notes. Less attention was paid to the safety of deposits. Critics now complained that the system was too inflexible and that it must be given a greater degree of "elasticity." The meaning of this term was often unclear, but we can discover its general meaning as we proceed.

Though national bank notes were safe, there was no provision for appropriate variations in their quantity over the long run, in response to seasonal variations in the need for them, and during crisis periods. We have already seen that these notes could be issued only on the basis of federal bonds, the amount of notes being limited to 90 per cent of the par

or market value—*whichever was lower*—of the bonds deposited with the Comptroller. Thus, the supply of national bank notes depended on the government bond market. The supply obviously could not exceed 90 per cent of the eligible bonds outstanding. Within this limit the quantity of notes actually issued by banks depended on the profitability of issuing them. When government bonds could be purchased at or below par, a relatively large volume of national bank notes was issued, because a bank could issue notes equal to 90 per cent of the purchase cost of the bonds. But the profitability of issuing notes was decreased and in some cases eliminated as the market price of bonds rose above their par value. For example, a bank would hesitate to pay \$1200 for bonds with a par value of only \$1000, for these would serve as collateral for only \$900 worth of notes; note issues were limited to only 75 per cent of the actual cost of the bonds. It was for these reasons that the volume of national bank notes outstanding fell from \$352 million in 1882 to \$162 million in 1891, a reduction of 54 per cent. But they had risen to \$715 million by 1914. Critics maintained that a note system of this type based on the government bond market could never supply a properly "elastic" currency that would respond properly to the needs of business. The volume of these notes fluctuated, but not necessarily in ways that were appropriate to economic needs.

National bank notes were also criticized for their lack of seasonal elasticity. The demand for currency for hand-to-hand use showed marked seasonal variations, reaching peaks in the early autumn and around Christmas and dropping to lower levels during other seasons. But the volume of outstanding national bank notes remained relatively constant throughout the year; hence banks could meet the seasonal peak demands for currency only by draining funds from their reserves, and the inflow of currency to the banks during slack seasons increased their reserves. Critics complained that the seasonal inelasticity of national bank notes brought about seasonal credit stringencies by forcing banks to draw on their reserves to meet peak seasonal demands for cash, and then led to an undue easing of credit in other seasons as currency flowed back into the reserves. They demanded the creation of a

currency that would be seasonally elastic—that would increase and decrease with seasonal demands for coin and currency and would leave bank reserves unaffected.

Critics also complained of the inelasticity of national bank notes during banking crises. They pointed out that there was no existing way in which new currency could be created to satisfy general demands upon the banks for cash, and that banks could not meet these demands out of the limited cash in their vaults. They proposed the authorization of a new type of currency whose quantity could be increased to meet crisis demands and then decreased again as demands for cash subsided. We shall see later that one of the principal purposes of the Federal Reserve Act of 1914 was to supply an elastic currency in the form of Federal Reserve notes.

The disturbing effects of an inelastic bank note system were intensified by a defective system of reserve requirements. We have already seen that national banks were required to maintain reserves against both notes and deposits—later against only deposits—equal to 25 per cent in central reserve and reserve cities and 15 per cent in other places. The banks in a few of the largest cities—New York, Chicago, and St. Louis—were designated as “central reserve city banks,” those in 47 other cities as “reserve city banks,” and those in other places as “country banks.” That this general classification of banks for the purpose of fixing reserve requirements was carried over into the Federal Reserve Act will be made clear later. Though these reserve requirements appeared large, the form of reserves was defective, as is suggested by the following summary:

Type of Bank	Percentage Reserve Requirement	Composition of Required Reserves
Country banks	15%	$\frac{3}{8}$ of reserve (or 6% of deposits) as cash in vault; remaining $\frac{3}{8}$ of reserve (9% of deposits) to be either cash in vault or deposits with reserve city or central reserve city banks.
Reserve city banks	25%	$\frac{1}{2}$ of reserve (12.5% of deposits) as cash in vault; remaining $\frac{1}{2}$ of reserve (12.5% of deposits) as either cash in vault or as deposits in central reserve city banks.
Central reserve city banks	25%	All as cash in vault.

This reserve system had three principal weaknesses. In the first place, a large part of the nominal reserve was "fictitious," in the sense that it was not available for meeting actual cash drains from the banking system. This was because such a large part of the reserves was in the form of deposits with other banks, which in turn held only a small percentage of actual cash as a reserve against their deposit obligations. Suppose, for example, that customers of country banks should demand large amounts of coin or currency. Holding an actual cash reserve equal to only 6 per cent of their deposits, the country banks would call on the reserve city banks to send them cash. But the reserve city banks held a reserve equal to only 25 per cent of their total deposits, only half of the reserve being in actual cash. To meet the drain, they in turn would call upon central reserve city banks for cash; but these banks had reserves equal to only 25 per cent of their deposits. Thus, the central reserve and the reserve city banks were in a precarious position; they were liable to drains not only by their own customers but by all the banks that held "reserves" in the form of deposits with them. Thus the threat of general cash withdrawals by the public or of a suspension of cash payments by the banks in large cities could bring on a banking panic, or at least a general tightening of credit, for it would lead country banks to withdraw their "reserves" from reserve city and central reserve city banks in order to hold their reserves in the form of cash in their own vaults, and the reserve city banks would make similar withdrawals from the central reserve city banks. It is no wonder that the National Banking System was so susceptible to panics.

In the second place, reserve requirements were very inflexible. Each bank was supposed to meet its reserve requirements at all times; it could not legally make any new loans while its reserves were deficient. Thus, when banks had lent up to the limit permitted by their reserves, and especially when their reserves had decreased, new lending was brought to a sudden stop and a scramble to liquidate loans was likely to occur. There arose a general demand that reserve requirements be relaxed by suspending these requirements in periods of crisis, or at least by allowing banks to meet these reserve

requirements on the average over a period of time, deficiencies at one time being balanced by overages at another. This latter method is employed for banks that are members of the Federal Reserve System.

In the third place, many criticized the "parcelation of reserves" resulting from the lack of any orderly way of pooling the reserves of individual banks to meet drains of cash from any segment of the banking system. Some compared existing reserve requirements with attempts to fight a fire by placing a pail of water in each house; the greater effectiveness of pooling the water and providing a system of pipes to concentrate it at the point of need is obvious. Advocates of bank reform proposed the establishment of a similar system of pooling individual bank reserves so that they could be concentrated at the points of greatest need in time of emergency. This was another purpose of the Federal Reserve Act of 1914.

The inelasticity of national bank notes and the defects—or at least the inadequacy—of bank reserve requirements were dramatized by the recurrent banking panics that occurred under the National Banking System before 1914. There were full-fledged panics in 1873, in 1884, in 1893, and in 1907, and serious credit stringencies threatened at other times. Unable to meet their obligations to pay cash on demand, most banks suspended payments for periods of varying lengths; some of them never reopened, a mad scramble to call loans ensued, and business activity suffered. The panic of 1907 was the last straw; popular disgust with recurrent panics made the Federal Reserve Act politically possible, though it had objectives beyond that of panic prevention.

BACKGROUNDS OF THE FEDERAL RESERVE SYSTEM

As already indicated, the Federal Reserve Act was passed and the Federal Reserve System established in 1914 because of shortcomings of the existing system of national and state banks. We have noted the three principal defects of this system emphasized by the advocates of bank reform—the lack of appropriate elasticity of national bank notes, the defective

reserve system, and the system's resulting vulnerability to panics. There were, however, several other complaints against the system which the Federal Reserve Act attempted to correct. We shall only mention them here.

1. The slowness and expensiveness of collecting checks that had to be transported long distances.
2. The inadequate coordination of state and national banks. It was hoped that the introduction of a new central supervisory authority would weld the two groups of banks into a more homogeneous and smoothly functioning system.
3. The inability of national banks to act as acceptors of time drafts drawn on them. Many claimed that prohibition of this function under the National Banking Act encouraged banks to seek state rather than national charters, deprived American business of a convenient and inexpensive method of finance, encouraged short-term funds to flow into stock market speculation rather than into the financing of "legitimate" business, and inhibited this country's growth as an international financial center.
4. The inability of national banks to lend on real estate. Many contended that the legal prohibition of real-estate loans by national banks placed them at a disadvantage relative to state banks, deprived them of legitimate lending opportunities, and deprived borrowers on real estate of an important source of funds. The 1914 act permitted national banks to lend on real estate under strict limitations which were liberalized somewhat in later years.
5. The lack of an adequate fiscal agent of the government. In many respects the national banking system left much to be desired as an instrument for holding and transferring government funds and distributing and retiring its securities.

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*The Federal Reserve System:
Its Structure and Control,
and Its Service Functions*

IN ESTABLISHING THE FEDERAL RESERVE BANKS IN 1914, THE United States was one of the last of the great financial powers to provide itself with a central bank. The Bank of Sweden was founded in 1656, the Bank of England in 1694, the Bank of France in 1800, the Netherlands Bank in 1814, and the Bank of Belgium in 1835; most of the other leading European countries established central banks well before the end of the nineteenth century. In general outline the functions of the Federal Reserve banks are similar to those of the central banks in other countries. But there are also important differences in the structure, control, and functioning of the various central banks, and these are traceable to economic, financial, and political differences among the countries. For example, most countries have one central bank with branches controlled by the central authority; we have twelve Federal Reserve banks exercising central banking functions. In many countries central banks are completely controlled by the government; in others control is divided between the government and other groups, such as private stockholders.

To understand the differences between our central banking system and those of other countries, several facts must be kept in mind. The most important of these are: (1) The

United States covers a large geographic area with differing economic and financial conditions in the various regions, whereas some of the other countries occupy much smaller areas and have less pronounced regional variations. (2) In some countries political power is concentrated in the central government and all bank charters are granted by that government, whereas in this country political power is divided between the federal government and the states; hence bank charters here are granted by 49 governmental units. (3) The types and amounts of government regulation and control of banking vary greatly from country to country. (4) We have thousands of separately incorporated commercial banks, whereas some other countries have only a few banks operating many branches; for example, most of the commercial banking in England is in the hands of five great branch banking companies. We cannot analyze here the structure and functions of foreign central banks, but we can trace the effects of these factors on the Federal Reserve banks.

Though the subject will be discussed in much greater detail in later chapters, it is necessary at this point to outline briefly the functions of the Federal Reserve System in order to understand the problems of its structure and control. In general, Federal Reserve functions may be divided into two broad groups: (1) central banking "chores," and (2) central bank control of the quantity of bank credit, of the terms on which credit is extended, and of the size of the money supply. The term "chores" is not used in any derogatory sense; it includes many highly useful functions, such as general supervision and examination of member banks, clearing and collection of checks and other instruments, transfer of funds from area to area, the holding and transfer of government funds, assistance to the Treasury in selling and retiring government securities, and safekeeping of valuables for banks and the government. But of far greater social importance is the Federal Reserve function of controlling credit and money. It issues by far the largest part of the paper money in circulation (Federal Reserve notes and Federal Reserve bank notes, mostly the former), and it not only holds all the legal reserves of member banks but it also determines, within wide limits, the dollar

volume of commercial bank reserves and the height of member bank reserve requirements relative to their deposits. In carrying out its monetary and credit control functions, the Federal Reserve lends, mostly to member banks, and fixes the discount rate and other conditions of its loans; it buys and sells securities (mostly federal obligations) in the open market, determining the quantity to be bought or sold; it buys and sells acceptances and fixes the discount rates applicable to them; it sets the height of member bank reserve requirements within the broad limits prescribed by law; and in various other ways it affects the volume, types, and terms of credit. With these general functions in mind we can now examine the structure, ownership, and control of the Federal Reserve System.

THE STRUCTURE OF THE FEDERAL RESERVE SYSTEM

The structure of the Federal Reserve System represents a compromise among varying opinions before 1914 as to the degree of centralization and decentralization that should be embodied in the new central banking system. At one extreme were those who believed that the country should be divided into a large number of districts, each with its own autonomous central bank. One plan called for twenty districts and twenty banks, each to be largely autonomous. Several arguments were advanced for this extreme decentralization: (1) Regional economic and financial differences. It was argued that the various regions of the country differed so greatly as to the height of interest rates, the types of industry and agriculture to be served, and the nature of customary banking practices that no one uniform credit policy could be appropriate for the whole country. (2) Fear of domination by Wall Street. Especially in the South and West it was feared that a single central bank would fall under the control of the giant New York banks, with their concentrated financial power, their alleged preoccupation with international finance, and their lack of benevolent interest in the hinterland and in small business. (3) Fear of government control. Some feared that a centralized

system would come to be dominated to an excessive extent by the federal government, and they wanted control lodged in the hands of bankers in the various districts.

At the other extreme many advocated the establishment of a single central bank with numerous branches, all to be controlled by a central authority. The advocates of centralization argued their case primarily on the basis of the indivisibility of the national credit market. They pointed out that credit is so mobile that any attempt to follow different credit policies in different regions would be doomed to failure. For example, if New York tried to tighten bank credit and raise interest rates while Chicago tried to liberalize credit and maintain low interest rates, both policies would probably fail. Credit would flow from Chicago to New York, thereby tending to defeat both Chicago's attempt to maintain easy credit and New York's attempt to tighten credit. This tendency toward equality of interest rates in all the principal markets would be accentuated by migration of the demand for credit from high-interest to low-interest areas. Many contended, therefore, that a centralized central banking system was necessary to achieve a coordinated and workable credit policy for the nation as a whole.

The Federal Reserve structure finally erected represents a compromise among these varying views. The country was divided into a number of districts, each with its own Federal Reserve bank, and a central authority was established in Washington to supervise the various Reserve banks and to coordinate their policies.

The 12 Federal Reserve Banks and Their Branches

The Federal Reserve Act provided that the continental United States, excluding Alaska, should be divided into not less than 8 or more than 12 Federal Reserve districts, each to have a Federal Reserve bank. The maximum number of districts and Reserve banks was established at the outset, so we have 12 Federal Reserve districts and 12 Federal Reserve banks. The boundaries of these districts are shown on the map in Fig. 10. Each Federal Reserve bank is named after

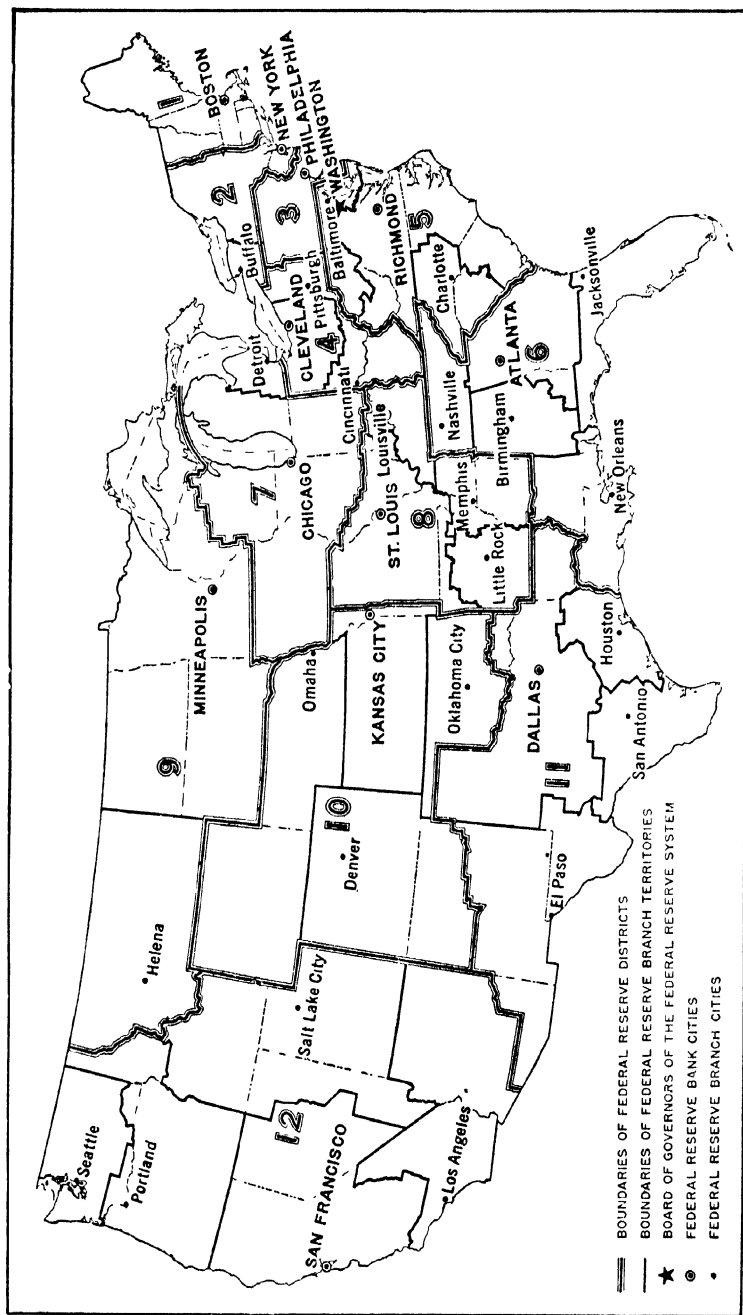


FIG. 10. *Federal Reserve System. Boundaries of Federal Reserve districts and their branch territories. (Source: Board of Governors of the Federal Reserve System.)*

the city in which it is located; thus there is the Federal Reserve Bank of Boston, the Federal Reserve Bank of New York, and so on. To facilitate their operations, some of the Federal Reserve banks have established branches in their districts. There are now 24 of these branches distributed unequally among the various Federal Reserve districts. The numbers of the Federal Reserve districts and the names and locations of the Federal Reserve banks and their branches are as follows:

FEDERAL RESERVE DISTRICTS, FEDERAL RESERVE BANKS AND
BRANCHES OF THE FEDERAL RESERVE BANKS

Federal Reserve
District Number

- | | |
|----|---|
| 1 | Federal Reserve Bank of Boston |
| 2 | Federal Reserve Bank of New York
Branch: Buffalo, New York |
| 3 | Federal Reserve Bank of Philadelphia |
| 4 | Federal Reserve Bank of Cleveland
Branches: Cincinnati, Ohio
Pittsburgh, Pennsylvania |
| 5 | Federal Reserve Bank of Richmond
Branches: Baltimore, Maryland
Charlotte, North Carolina |
| 6 | Federal Reserve Bank of Atlanta
Branches: Birmingham, Alabama
Jacksonville, Florida
Nashville, Tennessee
New Orleans, Louisiana |
| 7 | Federal Reserve Bank of Chicago
Branch: Detroit, Michigan |
| 8 | Federal Reserve Bank of St. Louis
Branches: Little Rock, Arkansas
Louisville, Kentucky
Memphis, Tennessee |
| 9 | Federal Reserve Bank of Minneapolis
Branch: Helena, Montana |
| 10 | Federal Reserve Bank of Kansas City
Branches: Denver, Colorado
Oklahoma City, Oklahoma
Omaha, Nebraska |

- 11 Federal Reserve Bank of Dallas
 Branches: El Paso, Texas
 Houston, Texas
 San Antonio, Texas
- 12 Federal Reserve Bank of San Francisco
 Branches: Los Angeles, California
 Portland, Oregon
 Salt Lake City, Utah
 Seattle, Washington

TABLE 18. RELATIVE SIZES OF THE 12 FEDERAL RESERVE BANKS,
 DECEMBER 26, 1945

Federal Reserve Bank of	Assets of Federal Reserve Bank as Percentage of Assets of All Federal Reserve Banks	Capital Account of Federal Reserve Bank as Percentage of Capital Accounts of All Federal Reserve Banks
Boston	5.7	6.6
New York	25.7	32.3
Philadelphia	6.0	8.3
Cleveland	8.2	9.3
Richmond	6.1	4.8
Atlanta	5.4	4.0
Chicago	16.6	13.3
St. Louis	4.0	3.5
Minneapolis	2.3	2.6
Kansas City	4.1	3.5
Dallas	3.4	3.4
San Francisco	12.5	8.4
Total	100.0	100.0

It is essential to note, as is shown in Table 18, that the Federal Reserve banks differ greatly as to both their size and their influence on credit and monetary conditions. The Federal Reserve Bank of New York, which is by far the largest, holds more than a quarter of the total assets of all the Reserve banks, and nearly a third of all Reserve bank capital, and its member banks hold more than a third of the total deposits at all member banks. The predominance of the New York Bank is even greater than these statistics imply, for it is the principal point of contact with foreign central banks, it has a direct influence on international financial transactions, it is located

in the midst of the great New York money market which draws funds from and dispatches funds to every part of the country, and its member banks, especially the giant banks in New York City, greatly influence banks in all parts of the nation through their correspondent relationships. At the other extreme, the relatively small Federal Reserve Bank of Minneapolis holds less than 3 per cent of all the assets of the Reserve banks, and its actions have relatively little influence on nation-wide credit and monetary conditions. The division of the country into Federal Reserve districts has by no means assured regional autonomy.

Member Banks in the Federal Reserve System

Each Federal Reserve bank has many "member banks," by which we mean the commercial banks in the district that have met at least the minimum requirements and have been accepted for membership in the Federal Reserve System.¹ As a member of the Federal Reserve, a commercial bank has both obligations and privileges. It must continue to meet various requirements for membership, submit to supervision and examination by Federal Reserve authorities, subscribe to stock in its Federal Reserve bank, and hold all its legal reserves in the form of deposits at its Federal Reserve bank. On the other hand, it enjoys the privilege of borrowing from its Federal Reserve bank and of using the other facilities of the System.

Before the establishment of the Federal Reserve System there were wide differences of opinion as to what commercial banks should be required or permitted to become members. At one extreme, those who were opposed to further "regimentation" of banks would have made membership in the System optional with each bank. At the other extreme, some would have forced every commercial bank in the country to become a member or cease to perform commercial banking functions. Here again the issue was settled by compromise. Every national bank must become and remain a member of

¹ Morris Plan banks and certain other incorporated banking institutions engaged in a similar type of business may also petition for membership.

its Federal Reserve bank or forfeit its federal charter. Each state bank may, at its option, become a member if it can meet the minimum requirements for membership.

Table 19 shows the number of members and non-members

TABLE 19. COMMERCIAL BANKS IN THE UNITED STATES THAT ARE MEMBERS AND NON-MEMBERS OF THE FEDERAL RESERVE SYSTEM²

DATA AS OF JUNE 30	TOTAL NUMBER OF COM- MERCIAL BANKS	MEMBERS OF FED- ERAL RESERVE SYSTEM			NON- MEMBER STATE BANKS	NUMBER OF MEMBER BANKS AS PERCENTAGE OF ALL COM- MERCIAL BANKS	DEPOSITS AT MEMBER BANKS AS PERCENTAGE OF TOTAL DE- POSITS IN ALL COMMERCIAL BANKS
		Total	National Banks	State Mem- ber Banks			
1915	25,875	7615	7598	17	18,260	29.4	49.4
1925	27,858	9538	8066	1472	18,320	34.2	72.8
1935	15,478	6410	5425	985	9,068	41.4	84.5
1945	14,003	6840	5015	1825	7,163	48.8	86.6
1946	14,026	6887	5012	1875	7,142	49.1	85.9

of the Federal Reserve System on various dates. In June, 1946, there were 6887 member banks, of which 5012 were national banks and 1875 were state banks. Thus, nearly 50 per cent of all commercial banks, holding about 86 per cent of all deposits at commercial banks, were members of the Federal Reserve. But 7142 state banks, or more than 79 per cent of all state banks, were non-members. Most of these non-members are relatively small, however, as is indicated by the fact that they hold only about 14 per cent of all deposits at commercial banks though in number they comprise about 51 per cent of all banks.

There are several reasons why so many state banks have failed to become members of the Federal Reserve System.³ Many of them cannot qualify for membership because of their inability to meet its minimum capital requirements. For

² Board of Governors of the Federal Reserve System, *Banking and Monetary Statistics*, Washington, 1943, pp. 16-17; Board of Governors of the Federal Reserve System, *Federal Reserve Bulletin*, August, 1947, pp. 998-999.

³ For an excellent discussion of this subject, see B. Magruder Wingfield, "Deterrents to Membership in the Federal Reserve System," in Board of Governors of the Federal Reserve System, *Banking Studies*, Washington, 1941, pp. 273-292.

example, 2389 state banks had insufficient capital for membership at the end of 1939; more than half of these, 1614, had a capital of less than \$25,000. But many state banks with sufficient capital for membership have for various reasons failed to join: (1) The Federal Reserve requirement of par clearance by its members. No member of the System may make "exchange charges" on checks forwarded to it for payment through the Reserve banks. That is, the member bank on which a check is drawn must pay the full face amount of the check to the payee or to the agencies taking the check for clearance and collection; it may not deduct any amount to cover alleged costs of making payment.⁴ But many non-member banks—2086 of them at the end of 1946—refuse to pay such checks at par, for they are unwilling to forgo this source of revenue in order to join the Federal Reserve. (2) Lower reserve requirements under state laws. The fact that reserve requirements for member banks are higher than those prescribed by some state laws makes some banks unwilling to join. (3) Unwillingness to comply with other regulations applicable to member banks. Many state banks operating under more lenient state banking laws are unwilling to comply with member bank regulations, such as the Clayton Anti-Trust Act prohibitions against interlocking bank officers, directors, and employees; restrictions on affiliates of member banks; limitations as to the types of assets acquired; limitations on a bank's loans to its executive officers; and reports required. (4) Availability of Federal Reserve services without membership. With certain limitations, non-member banks may use the Federal Reserve clearing system, borrow from Federal Reserve banks, and use other Federal Reserve facilities. A less generous policy toward non-members would probably force more banks into the System.

Should commercial banks be forced to meet the requirements of Federal Reserve membership and actually join the

⁴ It must be noted that these "exchange charges" differ somewhat from the service charges with which we are now so familiar. A member of the Federal Reserve may still charge its customers for the services it performs for them, including charges for cashing checks that are drawn on other banks. But it may not remit less than the face amount of a check drawn on it and presented to it by a Federal Reserve bank for payment.

System as a condition of continuing to carry on commercial banking functions? Many still answer this question in the affirmative, pointing out that the ability of banks to remain outside the System or to withdraw from it must necessarily lead to a deterioration of banking, or at least to greater difficulty in raising banking standards. Moreover, they believe that the effectiveness of Federal Reserve credit control is decreased by the fact that so many banks are outside the System. But others are adamantly opposed to compulsory membership for all state banks. They disapprove of further interference with a state's right to regulate its own banks, and they contend that the Federal Reserve already has sufficient control of credit through its control of banks that hold more than 85 per cent of all commercial banking assets.

OWNERSHIP OF THE FEDERAL RESERVE BANKS

Another controversial question prior to the passage of the Federal Reserve Act was, "Who shall provide the capital for the Federal Reserve banks?" Some wanted government ownership, with all the stock being sold to the federal government. Others wanted the stock to be sold to the general public. And still others wanted all of it to be sold to member banks. The solution was a compromise. Each member bank is required to subscribe to the stock of its Federal Reserve bank in an amount equal to 6 per cent of its own paid-up capital and surplus. It was provided, however, that stock would be offered to the public if insufficient capital was obtained from this source; and if subscriptions by the banks and the public were insufficient, stock would be sold to the federal government. In reality, no stock of the Federal Reserve banks has been sold to either the public or the government, and even the member banks have paid in only half of their subscriptions. Thus, the Federal Reserve banks are owned wholly by their member banks, each member bank having paid in to its Federal Reserve bank an amount equal to 3 per cent of its own paid-up capital and surplus.

It is important to note, however, that in this case ownership

does not carry with it full control of the corporation and the enjoyment of all its earnings. (The distribution of control is discussed in the next section.) Annual dividends to stockholders of the Reserve banks are limited to 6 per cent of the paid-in capital stock. The remainder of the Reserve bank earnings has been used to build up the surplus accounts of the Reserve banks and to provide revenue for the Treasury. Prior to 1933 each Reserve bank was required by law to pay the Treasury a franchise tax equal to 90 per cent of its net earnings after it had accumulated a surplus equal to its subscribed capital. By the end of 1932 the Reserve banks had accumulated surplus accounts amounting to \$278 million and had paid \$149 million in franchise taxes to the Treasury. The Banking Act of 1933 required the Reserve banks to pay half of their accumulated surplus, or \$139 million, as a subscription to the capital stock of the Federal Deposit Insurance Corporation, and in return repealed the franchise tax in order to enable the Reserve banks to use all their earnings in excess of dividend requirements to replenish their surplus accounts. By the end of 1946 the Reserve banks had built their combined surplus accounts up to \$439,823,000; therefore the Board of Governors in April, 1947, voluntarily put into operation a plan to channel into the Treasury most of the Reserve bank earnings in excess of their dividend requirements.⁵ About 90 per cent of these excess earnings will go to the Treasury through an interest charge on outstanding Federal Reserve notes.

CONTROL OF THE FEDERAL RESERVE SYSTEM

Closely related to the heated controversies over the structure of the Federal Reserve System were those concerning its control. The most widely debated questions were: (1) Who should control the Federal Reserve? (2) Should control be centralized or decentralized? Three principal groups wanted a voice in control—the federal government, member banks,

⁵ *Federal Reserve Bulletin*, May, 1947, pp. 518–519. The authority for this action by the Board is found in Section 16, paragraph 4, of the Federal Reserve Act.

and businessmen who were customers of member banks. Some, arguing that central banking is essentially a governmental function and that one of its principal objectives is the regulation of member banks, demanded full government control. On the other hand, many bankers who looked upon the new Reserve banks as essentially cooperative institutions for member banks demanded that full control be placed in the hands of bankers, although small banks feared domination by their larger competitors. Others argued that businessmen as customers of banks should be given a voice. No less heated were the discussions concerning the degree of centralization of control. Some wanted almost complete centralization, whereas others demanded a large degree of regional autonomy.

Here, too, the issue was settled by compromise. All the competing groups were given representation, and control was divided between a central authority in Washington and the regional Federal Reserve banks. In the following sections we shall describe the present system of control. It should be remembered, however, that the original division of authority proved unsatisfactory in many respects and that it has been changed in several ways during the period since 1914. In general, the evolution has been toward greater centralization of authority and a greater degree of control by the federal government.

The Board of Governors of the Federal Reserve System

The central controlling authority, which has its offices in Washington, is the Board of Governors of the Federal Reserve System. This Board is composed of 7 members (each called a governor) appointed by the President of the United States with the advice and consent of the Senate. Each member devotes his full time to the Board, receives an annual salary of \$15,000, is appointed for a term of 14 years, and is ineligible for reappointment if he has served a full term.⁶ No more than

⁶ Prior to 1935 this body was known as the Federal Reserve Board. Both the Comptroller of the Currency and the Secretary of the Treasury were ex officio members of the old Board. The Board was reconstituted in 1935, its members being given higher salaries and longer terms in order to strengthen it and to centralize control to a greater degree.

one member of the Board may be selected from any one Federal Reserve district, and in making appointments the President is to "have due regard to a fair representation of the financial, agricultural, industrial, and commercial interests, and geographical divisions of the country." The President designates one of the members as chairman of the Board and another as vice-chairman.

Though the actual location of control has in the past depended greatly on economic and political conditions and on the forcefulness of the various personalities involved, the Board of Governors is now clearly the most powerful controlling force in the entire Federal Reserve System. Among its most important powers are the following:

1. To exercise general supervision over the Federal Reserve banks, to examine their accounts and affairs, and to require reports from them.
2. To approve or disapprove appointments to the positions of president and first vice-president of each Federal Reserve bank and to suspend or remove any officer or director of any Federal Reserve bank.
3. To supervise the issue and retirement of Federal Reserve notes by each Federal Reserve bank.
4. To serve as a majority of the members of the Federal Open-Market Committee.
5. To permit one Reserve bank to lend to another, and by a vote of at least five members of the Board to require it to do so.
6. To suspend the reserve requirements applicable to the Reserve banks.
7. To determine, within the broad limits prescribed by law, the types of loans that the Reserve banks may make.
8. To approve or disapprove discount rates established by the Reserve banks.
9. To fix, within the limits established by law, member bank reserve requirements.
10. To regulate loans on securities.

Though this list is far from complete, it indicates the general scope of the Board's authority.

Federal Open-Market Committee

As we shall see later, one of the most powerful instruments of credit control in the hands of the Federal Reserve System is its power to buy and sell government securities, acceptances, and other obligations in the open market. The Reserve banks can create additional member bank reserves by purchasing obligations in the open market and can contract member bank reserves by selling securities. The original Federal Reserve Act was vague as to who should control this function, with the result that the individual Reserve banks sometimes followed conflicting policies and sharp controversies arose within the System. Attempts were made to solve the problem in the 1920's by creating an informal open-market committee made up of representatives of the Federal Reserve banks, but these efforts were only partially successful. Some Reserve banks complained that they were not adequately represented, others ignored the decisions of the informal committee, and the Board in Washington felt that it should have more control of this function.

The Federal Open-Market Committee was created by amendments to the Federal Reserve Act to clarify the location of authority and to centralize the control of Federal Reserve open-market operations.⁷ It is composed of 12 members; 7 of these (a majority) are members of the Board of Governors of the Federal Reserve System and 5 are representatives of the Reserve banks. The latter are elected annually, must be either presidents or vice-presidents of Reserve banks, and are elected by the boards of directors of the various Reserve banks, each board having one vote. The distribution of the five Reserve bank representatives is as follows:

One from the Federal Reserve Bank of New York.

One from the Federal Reserve Banks of Boston, Philadelphia, and Richmond.

One from the Federal Reserve Banks of Cleveland and Chicago.

⁷ The first Federal Open-Market Committee was established by amendment to the Federal Reserve Act in 1933. The Committee was reconstituted by further amendments in 1935, and minor changes have been made since that time.

One from the Federal Reserve Banks of Atlanta, Dallas, and St. Louis.

One from the Federal Reserve Banks of Minneapolis, Kansas City, and San Francisco.

Because of its key position the New York Bank is always represented on the Committee.

The Federal Reserve Bank of New York occupies a unique position with respect to the Federal Reserve System, the Treasury, and the banking system of the country. Its resources total approximately 40 per cent of the aggregate of the twelve Federal Reserve Banks. It is located at the central money market and at the principal market for Government securities; its operations as fiscal agent of the United States and its transactions with foreign governments, foreign central banks and bankers, as well as its operations in foreign exchange, are in far greater volume than those of any other Federal Reserve Bank. It is clearly in the public interest that the Federal Open-Market Committee be given at all times the benefit of counsel of the Federal Reserve Bank which is in constant touch with the domestic and international money and capital markets and has had long experience in these fields.³

The Federal Open-Market Committee has full control of all open-market purchases and sales by the Reserve banks. No Reserve bank may engage or decline to engage in open-market operations except in accordance with the regulations adopted by the Committee.

Federal Advisory Council

The Federal Advisory Council is composed of 12 members, one being selected by the board of directors of each Reserve bank. The sole function of this Council is to act in an advisory capacity to the Board of Governors. The only source of its power is its eloquence and the prestige of its members, most of whom are prominent men.

Control of Individual Federal Reserve Banks

The control of each of the 12 Federal Reserve banks is divided among the member banks in the district, businessmen

³ *Federal Reserve Bulletin*, August, 1942, pp. 740-741.

in the district, and the Board of Governors of the Federal Reserve System. Each Reserve bank has a board of directors with 9 members. Three of these are known as Class A directors, three as Class B directors, and three as Class C directors. The Class A directors represent the member banks of the district and are chosen by them. To prevent domination of the Reserve bank by any one banking group, the member banks of the district are divided into three groups based on size, and each group elects one Class A director. The Class B directors represent industry, commerce, and agriculture in the district and must be actively engaged in one of these pursuits at the time of their election. They may not be officers, directors, or employees of any bank. They are, however, elected by the member banks of the district in the same way as the Class A directors. All three of the Class C directors are appointed by the Board of Governors. One of these, who must be "a person of tested banking experience," is chairman of the board of directors and "Federal Reserve Agent" at the bank. As Federal Reserve Agent he acts as official representative of the Board of Governors in carrying out its legal functions. Another Class C director at each Reserve bank acts as deputy chairman of the board of directors.

The chief executive officer of each Reserve bank is its president, who is appointed by its board of directors with the approval of the Board of Governors. The first vice-president of each Reserve bank is appointed in the same way. Other Reserve bank officers and employees are appointed by the bank's board of directors, though they may, of course, be removed by the Board of Governors.

After a long period of doubt as to the proper location of authority in the Federal Reserve System, it is now clear that the Board of Governors occupies the dominant position. Some power still rests with the representatives chosen by member banks, but the Board of Governors has many sources of power. (1) Exclusive regulation of many Federal Reserve and commercial bank functions is in the hands of the Board. (2) Its members make up a majority of the members of the powerful Federal Open-Market Committee. (3) The Board appoints three members of the board of directors of each

Reserve bank, one of its appointees at each bank being chairman of the board of directors and Federal Reserve Agent.

(4) The Board may disapprove appointments of presidents and first vice-presidents of the Reserve banks and remove directors, officers, and employees.

SUMMARY OF THE STRUCTURE OF THE FEDERAL RESERVE SYSTEM

This, then, is the general structure of the Federal Reserve System:

BOARD OF GOVERNORS

—Located in Washington, composed of 7 members appointed by the President.

FEDERAL OPEN-MARKET COMMITTEE—12 members, including the Board of Governors and 5 representatives of the Reserve banks.

12 FEDERAL RESERVE BANKS

—Each separately incorporated, each located in an important city, each with a board of directors of 9 members, and each with its president and other officers.

24 BRANCHES OF THE FEDERAL RESERVE BANKS

—To facilitate the functioning of the Federal Reserve banks of their districts.

MEMBER BANKS

—Nearly 7000 banks (mostly commercial banks), of which about 5000 are national banks and

MEMBER BANKS—*Continued*

nearly 2000 are state banks. These banks hold more than 85 per cent of all commercial bank assets and by their magnitude can dominate commercial banking operations in this country. It is largely through its effects on member banks that the Federal Reserve can control the credit policies of non-member commercial banks.

FEDERAL RESERVE “CHORES”

Having examined the structure and control of the Federal Reserve System, we can now begin to study its functions. We shall look first at its service functions or “chores,” leaving its credit control functions for later chapters. In performing these chores the Federal Reserve has improved the quality of banking and greatly increased the convenience derived by the public from banks.

Banking Supervision

The supervision and examination of banking in this country are not exclusively a Federal Reserve function, but are shared with several other authorities. The Comptroller of the Currency has jurisdiction over all national banks. State banking authorities have jurisdiction over state banks. And the Federal Deposit Insurance Corporation has jurisdiction over all banks with deposit insurance, which includes all members of the Federal Reserve System and most of its non-members.

Though there are still many drawbacks to this system of overlapping jurisdiction, a considerable amount of cooperation among the regulatory authorities has been achieved. Each Reserve bank has its staff of bank examiners, and the member banks must make periodic reports as to their condition. In addition to requiring reports and examining member banks, the Federal Reserve exercises other important supervisory powers, among which are the powers to:

1. Fix maximum rates of interest that member banks may pay on time and savings deposits. The principal purpose of this limitation is to prevent banks from bidding these rates so high as to weaken their condition.⁹
2. Remove officers and directors of member banks for continued violation of banking laws or for continued unsafe or unsound banking practices.
3. Suspend a member bank's borrowing privileges in the Federal Reserve if it is found to be making undue use of bank credit for speculation in securities, real estate, or commodities.
4. Permit national banks, where appropriate, to exercise trust powers.
5. Permit holding companies, when it is not against the public interest, to vote the stocks of member banks controlled by them.
6. Permit member banks to establish branches in foreign countries.

Clearing and Collection of Checks

The Federal Reserve System has greatly enhanced the speed, convenience, and cheapness of clearing and collecting checks and other similar items. Before 1914 a check might spend two weeks or more in the process of being cleared and collected, especially if it had to move long distances. The maximum time now required for actual clearance and collection is less than a week, and banks clearing checks through the Federal Reserve receive payment in three days or less,

⁹ Banks are not allowed to pay interest on demand deposits.

depending on the distance the check must travel. The whole process is completed with virtually no shipment of coin or currency.

To illustrate the high development of the clearance and collection system for checks and other similar instruments, let us look at the process in a few typical situations. The processes often vary in detail from those described below, but the principles involved are similar. Let us suppose that Smith deposits with the First Hartford Bank in Connecticut a check for \$100 given him by Jones. If Jones' check is drawn on the First Hartford Bank, the process of clearance is simple; the bank simply adds \$100 to Smith's deposit account and deducts \$100 from Jones' account.

Suppose, however, that Jones has written the check on another bank in the same city—the Second Hartford Bank. After Smith has deposited the check with the First Hartford Bank, it may be cleared in either of two general ways. The two banks may informally exchange their claims against each other at the end of the day, the net debtor then paying the other bank with a check drawn on another bank—probably the Federal Reserve bank of the district. Final payment is thus made by transferring a deposit credit at the Federal Reserve from the account of the Second Hartford Bank to that of the First Hartford Bank. Or the banks may clear and collect checks through a local clearinghouse. Each bank in the area takes to the clearinghouse at an appointed time each day all the checks and other matured claims that it has against the other members of the clearinghouse. There the clearinghouse officials compare the total amounts of checks presented by one bank against all other banks with the total amount of checks presented by all other banks against it, and then pay it the net amount due it or collect the net amount owed by it. These net payments are usually made with checks, often with checks drawn on the Reserve bank of the district. Actual coin or currency is almost never used to pay net differences at a clearinghouse.

If the check Jones gives to Smith is drawn on a bank located in another city in the same Federal Reserve district, say in Springfield, Massachusetts, the clearance and collection pro-

cedure is somewhat as follows. Smith deposits the check with the First Hartford Bank, which credits his account and sends the check, along with others, to the Federal Reserve Bank of Boston for clearance and collection. The Boston bank then sends the check to Springfield, and the Springfield bank deducts the amount of the check from Jones' deposit account. After the lapse of sufficient time for notification if the check is not good, the Boston bank then deducts the amount of the check from the Springfield bank's reserve account with it and adds the same amount to the Hartford bank's reserve account. Payment of the check has been achieved quickly and with no shipment of coin or currency.

The procedure is only slightly more complicated if Jones' check is drawn on a bank in another Federal Reserve district, say on the Los Angeles Commercial Bank. Smith deposits the check with the Hartford bank, which credits his deposit account and sends the check, along with others, to the Federal Reserve Bank of Boston. The latter then sends the check, along with others, via air mail to the Federal Reserve Bank of San Francisco, which then sends it to the Los Angeles Commercial Bank. If the San Francisco bank is not notified within an appointed time that the check is not good it deducts the amount of the check from the Los Angeles bank's reserve account with it. And at or about the same time the Boston bank adds the amount of the check to the Hartford bank's reserve account. At this point Smith has been paid, Jones has paid, Smith's bank has been paid, and Jones' bank has paid. But the San Francisco bank still owes the Boston bank the amount of the check if it has not been offset by counterclaims. How is a net balance paid between Reserve banks? This is accomplished without any shipment of coin or currency by the simple expedient of book entries in the Interdistrict Settlement Fund, which is maintained by the Board of Governors in Washington. Each Reserve bank establishes a credit in the Interdistrict Settlement Fund. Any net balance due a Federal Reserve bank at the end of a day is added to its account in the Fund, and any net claim of other Reserve banks against it is deducted from its account.

It is by arrangements of this type that payments can be

made to all points within the country quickly and without the inconvenience and expense of coin or currency shipments. Federal Reserve facilities for clearing and collection are available without charge to all member banks and to all non-members who will remit the par value of checks drawn on them. The Federal Reserve will not, however, clear and collect checks drawn on non-members who refuse to pay the full face amounts of checks drawn on them. The "non-par banks" are still an inconvenience in the banking system.

Wire Transfer of Funds

In addition to providing a rapid and efficient system for clearing and collecting checks and other similar paper, the Federal Reserve System operates a highly convenient means for the telegraphic transfer of funds. The government and bank customers as well as the banks themselves can transfer funds of any amount from one end of the country to the other almost instantaneously. Suppose, for example, that Jones in Los Angeles wishes to transfer by wire \$1 million to Smith in Hartford. Jones gives his bank a check for that amount, and his bank telegraphs the Federal Reserve Bank of San Francisco, asking it to transfer the funds. The San Francisco bank deducts the amount from the reserve account of the Los Angeles bank and telegraphs the Federal Reserve Bank of Boston, telling it to transfer the funds to Smith at the First Hartford Bank. The Boston bank adds the amount of the check to the Hartford bank's reserve account and wires the Hartford bank to credit Smith's account. The whole process is completed within a very short time. The Federal Reserve Bank of San Francisco settles with the Boston bank through a transfer on the books of the Interdistrict Settlement Fund.

Fiscal Agency Functions

The Reserve banks do an enormous amount of work as fiscal agents of the federal government and of its various

offices and corporations. They hold the principal checking accounts of the Treasury Department, assist in the collection of taxes, cash government checks, transfer great sums of money from one part of the country to another for government account, receive applications for the purchase of federal securities, redeem federal securities as they fall due, pay interest coupons, and perform a host of other useful functions for the government. Government funds are now far safer and government fiscal operations are carried out much more efficiently and with far less disturbance to general financial and monetary conditions than at any time before 1914. And all these functions are carried on in addition to the Federal Reserve's activities in maintaining credit conditions that are favorable to borrowing by the Treasury.

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The Reserve Banks as Dealers in Debt

WITHOUT IN ANY WAY DEPRECATING THE USEFULNESS OF THE Federal Reserve System's service functions of the types described in the preceding chapter, we must emphasize that by far its most important function is regulating the supply of money and general credit conditions. The quantity of money in the country, the availability of bank loans, the height of interest rates—all of these are greatly influenced by the credit policies of the Federal Reserve. And through these the System exerts an important influence on general economic conditions.

The Federal Reserve banks and the Board of Governors exercise their monetary and credit control in three general ways: (1) Through the lending and investment policies of the Reserve banks themselves, as they increase or decrease their loans and investments and alter the terms on which they make credit available. In this way they regulate the volume of member bank reserves. (2) Through their power to raise and lower the legal reserve requirements of member banks. In this way they alter the amount of deposits that member banks may create on the basis of each dollar of their reserves. (3) Through a number of other powers which we shall examine later and which are in general less important than the first two. This chapter will deal primarily with the lending, investing, and money-creating powers of Federal Reserve banks.

CREATION AND DESTRUCTION OF MONEY BY THE RESERVE BANKS

In many respects the Reserve banks operate on principles that are similar to those of commercial banking. We have already seen that commercial banks, by creating checking deposits for the government, for corporations, and for the general public, supply a large part of the money with which we carry on our business. Most of the deposits existing at any time were created through commercial bank loans and purchases of securities; the banks increase and decrease the money supply by increasing and decreasing their holdings of loans and investments. The Reserve banks, too, are dealers in debts. They, too, issue their promises to pay on demand, taking in exchange the debts of others or net inflows of coin or currency. They, too, can increase or decrease the volume of their outstanding debts payable on demand by increasing or decreasing their holdings of the debts of others. There are, however, at least two major respects in which the operations of the Reserve banks differ from those of commercial banks: (1) The Reserve banks do not hold deposits for the general public; they hold deposits only for banks, mostly member banks, and the federal government. Only in unusual circumstances do the Reserve banks make direct loans to anyone other than banks. Hence these banks are often called "bankers' banks." (2) The Reserve banks, unlike today's commercial banks, have the power to create paper money in the form of circulating promissory notes. These are Federal Reserve notes and Federal Reserve bank notes, mostly the former.

Deposits at Federal Reserve Banks

It is essential to note at the outset that "deposits" at the Reserve banks are merely these banks' debts evidenced by book credits and payable on demand. They are in no sense warehouse receipts backed 100 per cent by coin or currency.

The Reserve banks are legally required to hold reserves in the form of gold certificates equal to only 25 per cent of their deposits, though as a matter of policy they usually hold reserves somewhat in excess of legal requirements.¹ But the fact remains—and must be emphasized—that deposits at the Reserve banks are merely demand debts of those banks and can be created and issued in exchange for the debts of others.

Most of the deposits at Reserve banks are owed to member banks. The Federal Reserve Act requires member banks to hold all their legal reserves in the form of deposits at their Reserve banks, and member banks sometimes hold in this form excess reserves above their legal requirements. We have already seen that member banks find their deposit accounts at the Reserve banks very useful in clearing checks and other similar items; net amounts due a member bank are added to its deposit account at its Reserve bank and net amounts due from a bank are deducted from its Reserve bank deposit. Non-member banks also hold deposits, though these are usually small, at the Reserve banks. The primary purpose of these non-member deposits is to facilitate check clearance and collection, but some state banking laws allow them to be counted as reserves. Foreign banks, mostly central banks, often have small deposits at the Reserve banks.

Though the federal government and its agencies have deposits with commercial banks, they also carry them with the Reserve banks. We shall see later that the size of member bank reserves can be altered by transfers of deposits at the Reserve banks between government and member bank accounts. For example, member bank reserves can be increased by a transfer of deposits from government account to member bank account at the Reserve banks, and member bank reserves can be decreased by a shift of deposits with the Federal Reserve from member bank to government account.

Federal Reserve Notes

As we have already noted, the Reserve banks have the power to create and issue paper money in the form of circulat-

¹ Prior to 1945 the Reserve banks were required to hold reserves equal to at least 35 per cent of their deposits.

ing promissory notes. Most of these are called Federal Reserve notes. These notes make up by far the largest part of the paper money that we use today. The total amount of paper money in circulation in March, 1947, was about \$28 billion, and nearly \$24 billion of this was in the form of Federal Reserve notes. These notes have full legal-tender power. They are issued by the individual Reserve banks under the supervision of the Board of Governors. In issuing these notes the Reserve banks must meet both legal reserve and collateral requirements. They must hold a gold certificate reserve equal to at least 25 per cent of the Federal Reserve notes outstanding.² They must also deposit collateral equal to 100 per cent of their outstanding notes, though the gold certificate reserve may also be counted as collateral. The remaining collateral, equal to 75 per cent of the Federal Reserve notes outstanding, may be in the form of either gold certificates or various kinds of promissory notes, bills of exchange, acceptances, or government securities. There were times before 1932, when the types of paper eligible to serve as collateral were more restricted, that the Reserve banks' ability to issue Federal Reserve notes was limited by the requirement of 100 per cent collateral. But now that most of the types of paper ordinarily purchased by the Reserve banks can be used as collateral, this requirement is no limitation on note issue; in the process of making loans or purchasing securities these banks acquire the paper for use as collateral against new note issues. However, the 25 per cent gold certificate reserve that is required can act as a limiting factor.

Federal Reserve Bank Notes

The Reserve banks also issue paper money in the form of Federal Reserve bank notes. These are similar to Federal Reserve notes only in that they are credit money. In collateral and method of issue they are very similar to national bank notes, which they were meant to replace. They do not require any reserve and are backed 100 per cent by government

² Prior to 1945 the legal reserve requirement against Federal Reserve notes was 40 per cent.

securities. Prior to the outbreak of World War II their volume never exceeded \$210 million and they were well on the way to being completely retired. Although their volume was increased during the war, it is expected that they will be almost entirely eliminated as the existing bills wear out. Because they are unlikely to be an important factor in our monetary system in the future we need not discuss them further.³

EFFECTS OF FEDERAL RESERVE LOANS AND INVESTMENTS

The purpose of this section is to examine the methods by which deposits at Reserve banks and Federal Reserve notes are created and destroyed. We shall find that they are similar to the methods of creating and destroying commercial bank deposits. Our present discussion will be slightly more complicated because of the fact that, whereas commercial banks issue their own debts largely in the form of deposits, the Reserve banks issue debts in the form of Federal Reserve notes as well as deposits. We may, however, concentrate our attention on the creation and destruction of deposits at the Reserve banks if we remember that the creditors of these banks have full freedom to exchange deposits at the Federal Reserve for Federal Reserve notes and other currency, and vice versa. That is, a bank may draw a check on its Federal Reserve deposit and take Federal Reserve notes or other currency in exchange, or it may ship Federal Reserve notes or other currency to the Reserve banks to increase its deposits there. In general, banks draw Federal Reserve notes or other currency from the Federal Reserve only to meet their customers' increased demands, and they ship back currency or coin only as a reflection of the decreased needs of their customers.

Deposits at the Reserve banks are built up in four general

³ For other aspects of the history of Federal Reserve bank notes and the conditions surrounding the new issues after 1941, see Board of Governors of the Federal Reserve system, *Banking and Monetary Statistics*, Washington, 1943, p. 328. The history of these notes suggests that they may again play a role during some future monetary emergency.

ways: (1) by net inflows of coin and currency to these banks, (2) by purchases of gold by these banks, (3) by Reserve bank loans, and (4) by Reserve bank purchases of government obligations, acceptances, and certain other securities in the open market.

The Reserve banks create deposit credits in favor of those who ship coin or currency to them. Thus, a member bank, a non-member bank, or the government is given a deposit at the Reserve banks in exchange for "deposits" of any kind of coin or currency, including Federal Reserve notes. These coin or currency inflows may result from a net inflow of coin or currency from circulation to the commercial banks, which is then forwarded to the Reserve banks for deposit. Or the Treasury may be given new deposits at the Reserve banks in exchange for newly created silver coins, silver certificates, etc.

The Reserve banks also create and issue new deposits by purchasing gold. Suppose that the Chase National Bank purchases 10 million dollars' worth of gold abroad and, as required by our monetary laws, delivers it to the Reserve banks. The latter will then credit the Chase reserve account with \$10 million.

Another and highly important method of creating deposits at the Reserve banks is through Reserve bank loans. These are made to member and non-member banks, mostly to members, and only occasionally to borrowers other than banks. But in any case the result is to increase deposits at the Reserve banks. A commercial bank borrowing from a Reserve bank receives the proceeds of the loan in the form of a deposit credit at the Reserve bank. This is an addition to the commercial bank's reserve account. Though the Reserve banks lend only occasionally to borrowers other than banks, the effect of these loans when they are made is to increase deposits at the Reserve banks. If Jones borrows \$100,000 from a Reserve bank, he is likely to deposit the check that he receives with his commercial bank, which will credit his deposit account and forward the check to its Reserve bank, which in return will credit the bank's deposit account at the Federal

Reserve. Thus the Reserve banks issue deposits with themselves in the process of making loans.

In a similar way the Reserve banks create deposits with themselves by purchasing government obligations, acceptances, and certain other securities in the open market from banks or other sellers. Suppose that the Reserve banks purchase a million dollars' worth of these securities in the open market. If the sellers are banks, they receive in return a \$1-million increase in their deposits at the Reserve banks. If the sellers are people or corporations other than banks, they are likely to deposit the checks they have received for their securities with commercial banks, which credit their accounts and send the checks along to the Reserve banks, which then credit commercial bank reserve accounts. In this way Reserve bank purchases of securities create deposits at the Reserve banks.

Deposits at Reserve banks are reduced in four general ways, which are the reverse of those by which deposits are built up: (1) by net withdrawals of coin or currency from the Reserve banks, (2) by sales of gold by these banks, (3) by reductions of Reserve bank loans outstanding, and (4) by Reserve bank sales of acceptances, government obligations, and other securities in the open market.

Those withdrawing coin or currency, including Federal Reserve notes, from Reserve banks usually do so by writing checks or otherwise authorizing a deduction from their deposit accounts at these banks. This is true whether the one making the withdrawal is a commercial bank that wants coin or currency to meet its customers' demands, or the Treasury withdrawing coin or currency for cancellation or for hoarding in its vaults. Similarly, sales of gold by the Reserve banks reduce deposits with them, because the buyer usually pays for the gold by drawing on his deposit account, and the amount of the check is deducted from his bank's reserve account.

Reduction of Reserve bank loans also tends to reduce deposits at the Reserve banks. A bank paying a loan to a Reserve bank does so by drawing on its deposit account there;

a borrower who is not a bank makes payment by sending the Reserve bank a check drawn on a commercial bank, and the amount of the check is deducted from the commercial bank's reserve account.

In a similar way, Reserve banks reduce deposits with themselves by selling government obligations, acceptances, and certain other securities in the open market. If the buyer of the securities is a commercial bank, the Reserve banks collect by reducing the bank's deposit account with them. If the buyer is someone other than a bank, he usually pays with a check on a commercial bank, the amount of the check being deducted from his commercial bank's deposit at the Reserve bank.

In summary, the factors tending to increase and to decrease deposits at Reserve banks are as follows:

Factors Increasing Deposits at Reserve Banks	Factors Decreasing Deposits at Reserve Banks
1. Net inflow of coin or currency to Reserve banks.	1. Net withdrawals of coin or currency from Reserve banks.
2. Gold purchases by Reserve banks.	2. Gold sales by Reserve banks.
3. Loans by Reserve banks.	3. Reductions of Reserve bank loans outstanding.
4. Reserve bank purchases of securities in the open market.	4. Reserve bank sales of securities in the open market.

Changes in the volume of deposits at the Reserve banks during any period depend upon the various factors listed above. It is well to remember that these factors determine the total volume of deposits at the Reserve banks, including government as well as commercial bank deposits. The volume of commercial bank deposits at Reserve banks can be increased or decreased by transfers between government and commercial bank accounts there. These transfers will be discussed more fully in the following chapter.

Limitations on the Quantity of Federal Reserve Bank Credit

We have just seen that the Reserve banks can create deposits with themselves by making loans and by purchasing securities in the open market. They can issue Federal Reserve notes in the same way. What is the limit to the volume of Federal Reserve notes and deposits with themselves that these banks can create? The answer is to be found in their reserve requirements. Under the terms of the Federal Reserve Act, the Reserve banks are required to maintain gold certificate reserves equal to at least 25 per cent of their outstanding deposits and Federal Reserve notes. In other words, they are not to have outstanding at any time deposits and Federal Reserve notes amounting to more than four times their holdings of gold certificates. In an indirect way this requirement of reserves sets a maximum limit to Federal Reserve loans and security purchases, for these lending and investing operations create Federal Reserve notes or deposits at the Federal Reserve banks.

It would be a mistake, however, to assume that these reserve requirements set an inflexible upper limit to the volume of Federal Reserve credit. In the first place, the Board of Governors is empowered to suspend the reserve requirements of the Reserve banks for a period not exceeding 30 days and to renew the suspension an indefinite number of times, each renewal not to exceed 15 days. The only penalty is a graduated but not prohibitive tax on the amount of a Reserve bank's reserve deficiency, and a requirement that the Reserve banks raise the interest rates on their loans by the amount of the tax. The Board has never used this power and would probably be reluctant to do so, but it remains available. In the second place, reserve requirements can be lowered if they threaten to limit the expansion of Reserve bank credit and if Congress believes this limitation would be undesirable. As noted earlier, the reserve requirements of the Reserve banks prior to 1945 were 35 per cent against deposits and 40 per cent against Federal Reserve notes. Thus, the average reserve requirement against total Reserve bank deposits and outstanding Federal Reserve notes was somewhere

between 35 and 40 per cent. By the middle of 1945, the actual ratio of reserves to combined Federal Reserve deposits and notes fell below 45 per cent and it was feared that the Reserve banks would soon face the alternative of ceasing to expand their loans and investments to facilitate war finance or of suspending their reserve requirements. Congress, wanting these banks to continue easy credit conditions, lowered the reserve requirements to 25 per cent. That further reductions will occur in the future is not impossible. In fact, many students of monetary management would free central banks of all reserve requirements in order to achieve maximum flexibility, leaving the control of credit entirely to the discretion of central bank authorities.

It is also essential to note that the Reserve banks, unlike commercial banks, ordinarily do not expand their loans and investments to the maximum permitted by their reserves. We have seen that a commercial bank is privately owned and that its primary objective, from the point of view of its owners, is to make as large profits as it can without an excessive sacrifice of safety. Thus a commercial bank is motivated to expand its loans and investments to the maximum permitted by its reserves unless it is deterred by the fear of risk. But the primary purpose of the Reserve banks is not to make profits, it is to regulate the volume and conditions of credit in the general social interest; and the attainment of this end usually necessitates some sacrifice of potential profits by these banks. That they do ordinarily lend and invest far less than would be permitted by their reserves is shown in Table 20. Only once before 1945 did the reserve ratio fall close to its legal minimum, which was between 35 and 40 per cent. This was in 1920, and the primary motive for the expansion of Federal Reserve credit at that time was not to expand earnings but to facilitate war finance. The same motive, facilitation of war finance, accounts for the great expansion of Reserve bank loans and security holdings in the period immediately preceding 1946. During most of the time since 1914 the Reserve banks have held large excess reserves, thereby retaining a high degree of freedom to expand as well as contract their credit for management purposes.

TABLE 20. RATIOS OF RESERVE BANK RESERVES TO THEIR DEPOSITS AND OUTSTANDING FEDERAL RESERVE NOTES

Year (Average for June)	Percentage of Re- serves to Deposits and Outstanding Federal Reserve Notes	Year (Average for June)	Percentage of Re- serves to Deposits and Outstanding Federal Reserve Notes
1917	70.9	1932	58.4
1918	57.4	1933	68.3
1919	50.6	1934	69.5
1920	41.3	1935	73.8
1921	65.2	1936	78.8
1922	77.8	1937	79.6
1923	76.7	1938	82.5
1924	82.5	1939	85.4
1925	76.3	1940	88.5
1926	75.4	1941	91.1
1927	77.8	1942	89.3
1928	68.0	1943	73.8
1929	74.5	1944	56.3
1930	82.4	1945	44.9
1931	84.3	1946	42.7

Reserve Bank Loans to Banks

Having explored the general effects of Reserve bank loans and security purchases in the open market, we can now investigate the types of loans and purchases made and the methods of their control. We must not, however, allow the mechanics of these operations to obscure the importance of their general effects.

The Reserve banks lend to member and sometimes non-member banks in two general ways: (1) by discounting (sometimes called rediscounting) paper previously held by the borrowing banks, and (2) by purchasing the member banks' own promises to pay secured by the deposit of collateral. The original Federal Reserve Act assumed that all or most Reserve bank loans would be made by rediscounting customers' paper held by commercial banks. Rediscounting is done in the following way: The borrowing bank endorses some of its customers' eligible paper and sends it to the Reserve bank, which "discounts" it by subtracting interest at the rate es-

tablished by the Reserve bank and crediting the remainder to the borrowing bank's reserve account. In effect, discounting or rediscounting is merely the sale of customers' paper by a bank to its Reserve bank. This method of lending presents several mechanical difficulties—many pieces of paper may have to be handled in one transaction, the denominations of the customers' paper may not correspond with the amount the commercial bank wishes to borrow, the maturity of the paper may be either too distant or too near, and so on. Almost all Reserve bank loans now take the form of "advances," that is, of loans on the borrowing banks' own notes. In making these advances, however, the Reserve banks always require the deposit of collateral security with a value at least equal to the amount of the borrowing bank's promissory note. In some cases the value of the collateral must exceed the amount of the loan.

What kinds of paper will the Reserve banks discount for borrowing banks or accept as collateral for advances to such banks? Though many changes have occurred since 1914, the Federal Reserve Act still contains remnants of pre-1914 banking theory. The original Federal Reserve Act was based on the theory that the Reserve banks should take only "short-term self-liquidating agricultural, industrial or commercial paper which was originally created for the purpose of providing funds for producing, purchasing, carrying or marketing of goods." The theory was that the banks should not take paper whose proceeds were "used to finance fixed investments of any kind; or any investments of a purely speculative character; or for carrying or trading in stocks and bonds except obligations of the United States; or to finance relending operations except relending by cooperative marketing associations and factors." The theory that this short-term, self-liquidating paper should be given preferential status still survives in the provision that the Reserve banks may discount (or rediscount) only paper of this type, but this provision is now of only limited importance, for most Reserve bank loans take the form of advances, and other types of bank assets may be used as collateral for these advances.

The so-called "commercial loan theory of banking" on which the lending provisions of the original Federal Reserve Act were based has lost most of its adherents since 1914 and has virtually ceased to serve as a guide to Reserve bank lending. There are several reasons for this. (1) The mechanical difficulties of discounting customers' paper or of using it as collateral for advances to commercial banks. Much the simpler method of Reserve bank lending is through advances to banks with securities of the federal government as collateral. (2) Inadequacy of member bank holdings of eligible commercial paper. Because of many changes in the business structure and in commercial bank lending practices after World War I, bank holdings of high-quality commercial paper declined markedly. The decline was especially great during the depression following 1929. As a result, it was necessary to make other types of bank assets eligible as a basis for borrowing if the Reserve banks were to be of maximum usefulness to their members. (3) The basic fallaciousness of the commercial loan theory. With the passage of time it became increasingly evident that the restriction of commercial bank and Reserve bank loans to "commercial paper" could not attain any of the objectives claimed for it. It cannot automatically adjust the volume of credit to the amount that is socially desirable, for harmful inflations and deflations of the volume of credit can occur even if both commercial banks and Reserve banks make only "commercial loans." Moreover, it has become increasingly clear that "commercial paper" is often less liquid than some other types of assets, especially call loans on securities and short-term government obligations. An individual commercial bank can achieve "liquidity" more easily by selling highly marketable securities than by calling its commercial loans. The "liquidity" of any asset for the commercial banking system as a whole depends on the ability and willingness of the Reserve banks to buy it or lend on it and to issue money or bank reserves in exchange. Thus, the liquidity of the commercial banking system as a whole is enhanced by broadening the Reserve banks' lending powers, not by limiting the types of paper on which they can lend. It is hard to see how any

asset can be "illiquid" for the Reserve banks if it can be used as a basis for issuing Federal Reserve notes, which have full legal-tender powers.⁴

Because of the factors indicated above, the types of assets on which the Reserve banks may lend have been greatly broadened. We may summarize as follows the present power of these banks to lend to member banks. (1) The Reserve banks may discount (or rediscount) for member banks only short-term commercial paper of the type described above. Only infrequently, however, do banks borrow in this way. (2) By far the greater part of Reserve bank loans takes the form of advances to banks, with collateral in the form of eligible short-term commercial paper or United States government securities. Most of these advances have government securities rather than commercial paper as collateral. Now that the banks have such great holdings of government securities they need worry but little about the eligibility of their other assets for rediscount. (3) Though virtually all Reserve bank loans to banks take the forms indicated above, the Banking Act of 1935 provides that a Reserve bank can also make advances to a member bank on its note "secured to the satisfaction of the Federal Reserve Bank" and complying with rules and regulations prescribed by the Board of Governors. The effect of this provision is to give the Federal Reserve System almost complete freedom to determine the types of collateral that it will accept. But loans made under this provision must bear interest at a rate not less than $\frac{1}{2}$ of 1 per cent above the highest rate applicable to loans of the types under (1) and (2) above. As a result, banks will not borrow under this section so long as they have an adequate supply of eligible commercial paper or government obligations. There is no doubt that the trend has been toward greater freedom for the Federal Reserve System to determine the types of loans that it will make.

⁴ For a good short criticism of the commercial loan theory as applied to Reserve banks, see W. R. Burgess, *The Reserve Banks and the Money Market*, Harper, New York, 1936, pp. 41-67.

Reserve Bank Loans to Borrowers Other Than Banks

Prior to 1932 the Reserve banks were not permitted to lend to anyone except banks. In the midst of the great depression, however, the complaint was frequently heard that owing to the widespread failure of banks and the general distrust of borrowers many business concerns of good standing were unable to secure loans and that the depression was thereby being deepened and prolonged. It was therefore provided that in "unusual and exigent circumstances" the Board of Governors, by a favorable vote of at least five of its members, might authorize a Reserve bank to lend to an individual, partnership, or corporation, but only after finding that the borrower was unable to secure adequate credit accommodations from other banking institutions. The Reserve banks made loans of this type during the war as well as the depression, but these were not large and the banks conscientiously avoided competition with commercial banks. Upon receiving applications for such loans, the Reserve banks try to place them with commercial banks. If these attempts fail, they sometimes make the loan in cooperation with a commercial bank and share the risk.

Open-Market Purchases and Sales

The principal types of assets purchased and sold in the open market by the Reserve banks are (1) bills of exchange and acceptances, and (2) United States government obligations. The Reserve banks can buy or sell bills of exchange payable either on demand or after a lapse of time, and payable in foreign money as well as in dollars. We shall see later that they can affect international gold flows and foreign-exchange rates by their operations in international drafts. But here we must especially note Reserve bank purchases and sales of acceptances in the open market.

Before the passage of the original Federal Reserve Act, acceptances were not widely used in this country. National banks were not permitted to accept time drafts drawn on them for the benefit of their customers, and we had no well-

developed acceptance market. Critics found many faults with this system. They complained that banks were deprived of legitimate business, that industry was deprived of a convenient and cheap method of short-term finance, and that temporarily available short-term funds tended to be diverted into security speculation rather than channeled into the financing of commerce and industry. To remedy this situation the Federal Reserve Act permitted national and other member banks to accept time drafts drawn on them, thereby assisting in bringing forth a supply of acceptances, and provided that the Reserve banks might buy acceptances in the open market, thereby helping to create a market for them. In carrying out this function, the Reserve banks have purchased and sold acceptances in large volume. In fact, some contend that the acceptance market is too dependent on Reserve bank demand. In purchasing acceptances, the Reserve banks operate as follows: They fix their buying rate (the applicable discount rate—in late 1946 this stood at 1 per cent a year) and then purchase all acceptances offered at that rate. Only rarely do they refuse to buy safe acceptances at the established buying price. Instead, they try to increase or decrease the amount offered to them by lowering or raising the applicable discount rate. Most Reserve bank purchases of acceptances come from banks and acceptance dealers. Some purchases are “unconditional”; acceptances purchased in this way are held by the Reserve banks to maturity. Others are under “repurchase agreements,” by which the seller agrees to repurchase the acceptances within 15 days.

The Reserve banks unquestionably have greatly increased the liquidity of acceptances by their willingness to buy all offered to them, and they have promoted the practice of financing short-term needs in this way. In fact, there have been times when these banks have probably assisted the acceptance market too much in view of the desirability of tightening general credit conditions. This was especially true in the latter half of 1928 when the Reserve banks added nearly \$300 million of acceptances to their holdings at the time they were otherwise trying to tighten credit.

Federal Reserve purchases and sales of United States gov-

ernment obligations in the open market have become an increasingly more important instrument of credit policy.⁵ At no time before the end of 1929 did Reserve bank holdings of government securities rise above \$610 million. At the time of Pearl Harbor they amounted to nearly \$2200 million. Early in 1947 they amounted to about \$22 billion and made up by far the largest part of Federal Reserve credit.

Until World War II the Reserve banks were not permitted to purchase obligations directly from the Treasury for fear that general credit conditions would be sacrificed to the fiscal needs of the government. However, this rule was temporarily relaxed during the war. The Reserve Banks buy and sell federal securities of all maturities, but they tend to concentrate on short-term issues.

CONTROL OF FEDERAL RESERVE LOANS AND OPEN-MARKET OPERATIONS

The methods used by the Federal Reserve System to control the volume of its outstanding credit, and the precision of these various methods of control, vary considerably with different types of credit. This fact will be emphasized in the sections which follow.

Control of Reserve Bank Loans

When the Federal Reserve Act was passed, opinions varied greatly as to the rights of a member bank to borrow from the Reserve banks. Some claimed that any member bank with eligible paper had a "right" to borrow from its Reserve bank, subject only to the limitation that it could not absorb more than its "fair share" of the Reserve bank's lending ability. Others insisted that borrowing was a privilege which was

⁵ We shall discuss here only Federal Reserve operations in the direct obligations of the United States, because these are by far the largest part of the total. It is well to remember, however, that Reserve banks may also purchase and sell acceptances and debentures of the Federal Intermediate Credit banks, tax anticipation warrants of states and municipalities, Federal Farm Loan bonds, and several types of bonds fully guaranteed by the federal government.

subject to control by the Federal Reserve System. The System has always taken the latter view and insisted on its right to control both the conditions and the amounts of its loans.

In evaluating the effectiveness of Federal Reserve control over the volume of its loans we must constantly remember an institutional fact in the American banking system—"the tradition against rediscounting" or, as it is sometimes expressed, "the tradition against continuous borrowing." This tradition arose during the pre-1914 period when banks sometimes borrowed from other banks, especially their correspondents in the big cities. It was considered justifiable for a bank to borrow in this way for short periods or during emergencies, but not continuously over long periods of time. To remain continuously in debt to other banks over a long period was considered *prima facie* evidence of risky banking. Though the tradition seems of doubtful validity in view of the willingness of banks to contract large debts with their depositors, it has carried over to the present time and greatly influences the ability of the Reserve banks to control the volume of their loans to commercial banks. It probably assists the Federal Reserve System in keeping down the volume of bank borrowings when that is desirable, but it decreases its ability to persuade banks to increase their borrowings.

The Federal Reserve has two principal instruments with which to regulate the quantity and terms of its loans: (1) its discount rates, and (2) a series of powers grouped together as "moral suasion" or "direct action." Each Reserve bank is empowered to fix its discount rates (interest rates on loans) "subject to review and determination by the Board of Governors," and these rates must be established every 14 days, or oftener if deemed necessary by the Board. Thus, control of Reserve bank discount rates is effectively lodged in the Board of Governors. Each Reserve bank has its own discount rate, but the rates of the various Reserve banks are often at the same level and rarely differ from each other by more than half a percentage point. We can therefore use the discount rate of the Federal Reserve Bank of New York as a rough indicator of the System's discount rates.

To discourage member bank borrowing the Reserve banks

can raise their discount rates. Thus, the discount rate of the New York bank was raised to 7 per cent in 1920 and was brought up to 6 per cent in 1929. Conversely, the Reserve banks lower their discount rates to encourage member banks to borrow from them. The New York bank's rate was lowered to 3 per cent during the 1924 recession, to 1 per cent in the latter part of the great depression, and, during World War II, to an even lower level on paper secured by government obligations.

Changes in Reserve bank discount rates affect the credit situation in two general ways. An increase in the rate represents an increase in the cost of member bank borrowing at the Federal Reserve, and a decrease represents a decrease in the cost of such borrowing. These changes in the cost of borrowing tend to affect the rates charged by member banks on their own loans. Member bank charges on loans do not vary closely with Reserve bank discount rates, however. Increases in Reserve bank discount rates may be relatively ineffective if member banks are not heavily in debt to the Reserve banks. Largely because of the tradition against continuous borrowing by member banks, reductions in Reserve bank discount rates usually do not lead member banks to take large new loans from the Federal Reserve in order to expand their own credit. In addition to altering the cost of borrowing at the Reserve banks, changes in discount rates have psychological effects. Increases are often considered to be a general warning that the Reserve banks intend to tighten credit and will employ all their powers to this end. Thus rate increases may induce a tightening of credit by causing bankers and others to call loans and otherwise try to anticipate Reserve bank tightening operations. Conversely, a reduction in discount rates may be generally construed as assurance that the Reserve banks intend to maintain easy credit conditions, thereby encouraging banks to lend more liberally.

"Moral suasion" and "direct action" are terms applied to a whole series of actions that the Reserve banks may take to influence both the volume of member bank borrowing and the lending policies of the member banks. Let us look first at the types of moral suasion that may be employed to restrict

credit. In its mildest form, moral suasion may consist merely of general admonitions to borrow sparingly from the Reserve banks and arrest any excessive expansion of credit. Speeches by individual Federal Reserve officials, joint statements by the Board of Governors and representatives of the Reserve banks, press releases, circular letters to banks—all these and other broad methods may be used to discourage excessive expansion. If these methods fail, more specific action may be taken. Individual banks may be required to explain the continued high level of their borrowings and be warned to bring their policies into line with those advocated by the Federal Reserve. Loans to a bank may be rationed, and in extreme cases a bank's privilege of borrowing from the Federal Reserve may be suspended if it is found to be making undue use of credit for any purpose "inconsistent with the maintenance of sound credit conditions."

Moral suasion is also used in attempts to arrest contractions of credit and induce an expansion. Member banks are told that the Federal Reserve approves of liberal credit extensions, that its lending facilities are freely and cheaply available to member banks who will make loans, and that in general banks should not be deterred by the tradition against borrowing. As a means of arresting credit contractions and inducing expansion the efficacy of moral suasion seems to be limited. Member banks may be permitted to borrow freely but they may refuse to take advantage of the opportunity.

From the preceding discussion it is clear that Reserve banks have only a very imprecise control over the volume of their own loans to member banks. The Reserve banks fix their discount rates and the other conditions of their lending, but member banks are the ones that make the decision as to the amounts to be borrowed under the terms fixed by the Reserve banks. The only exception to this occurs under the very rare circumstances when the Reserve banks limit the amount of their loans by rationing. The ability of these banks to induce an expansion of loans from themselves is especially limited; they may reduce their discount rates to a very low level and implore banks to borrow, but the banks may be unresponsive. This is particularly true during periods of depression when

banks consider lending highly risky. It is in periods of this sort that banks are likely to take most seriously the tradition against continuous borrowing.

Control of Reserve Bank Acceptance Holdings

As we have seen, the Reserve banks usually fix their buying prices on acceptances and then take all the safe acceptances offered to them at those prices. Only rarely do they refuse to take acceptances of good quality. Thus, the Federal Reserve System itself determines its buying price, but banks and other sellers determine the quantities that they will sell to the Reserve banks at the established price. By raising the discount rates at which they buy acceptances the Reserve banks can increase the quantity absorbed by other purchasers and reduce the quantity offered to themselves. And by lowering their discount rates on acceptances the Reserve banks can increase the amount of this paper offered to them for purchase. It should be emphasized, however, that the sellers determine the amounts to be offered for sale at the rates set by the Reserve banks.

Control of Federal Reserve Open-Market Purchases and Sales of Government Securities

In view of the inaccuracy of Federal Reserve control over the volume of its credit extended through loans and acceptance purchases, it is fortunate that the System has, if it wishes to use it, complete and precise control over the volume of its government security holdings. The Federal Open-Market Committee, acting for the Reserve banks, has the power to determine the quantity and types of securities to be purchased or sold. The adequacy of its control was considerably impaired during the period from April, 1942, to July, 1947, when as a matter of policy it set a discount rate of $\frac{3}{8}$ of 1 per cent on Treasury bills and stood ready to purchase all such paper offered by sellers at that rate, thus setting a floor price for these securities. Ordinarily, however, the Reserve banks retain complete and exact control over the volume of their government security holdings.

Now that the federal debt has reached such a huge total the only meaningful limit to the ability of the Reserve banks to buy government securities is the requirement that they maintain a 25 per cent gold certificate reserve against their deposits and outstanding Federal Reserve notes. Thus they can create large amounts of additional bank reserves through their security purchases. But their ability to reduce bank reserves by selling securities is, of course, limited by the amount of this paper that they possess. This has at times threatened the System's ability to prevent overexpansion of credit and money. For example, at the end of 1941, when the Federal Reserve had already raised member bank reserve requirements to the highest level permitted by law, member banks still had excess reserves of about \$3500 million. But these banks were virtually out of debt to the Reserve banks, and the latter held only about \$2200 million in government securities. If the Federal Reserve had sold all its security holdings, member banks would still have had at least \$1300 million of excess reserves on which to base a multiple expansion of their deposits. To meet situations of this type it has been suggested that the Reserve banks should be permitted, after they have disposed of their security holdings, to create and sell their own debt obligations to banks and others in order to reduce bank reserves. No action has been taken on this proposal as yet.

Though the Federal Reserve has adequate control of its security holdings, we must remember that changes in the volume of these holdings may at times be offset, at least partially, by changes in other types of Federal Reserve credit. Let us consider first a case in which the Federal Reserve sells \$200 million of securities in order to reduce bank reserves and tighten credit. As their reserves decrease, the commercial banks may restrict their credit without attempting to replenish their total reserves. But they are likely to have access to other types of Federal Reserve credit, either by selling acceptances to the Reserve banks or by borrowing from them. If the Federal Reserve does not raise discount rates on acceptances at the same time that it sells securities, the effectiveness of its restrictive policy is likely to be reduced as more accept-

ances are sold to the Reserve banks, or the banks may replenish their reserves by increasing their borrowings from the Federal Reserve. It must not be inferred, however, that the effectiveness of open-market sales of securities is completely lost if member banks are thereby driven to increase their borrowings from the Reserve banks in order to repair their reserve positions. The fact that they are now forced more deeply into debt to the Reserve banks and that they follow the tradition against continuous borrowing may well make them less willing to lend or even cause them to curtail their credit over a period of time. Moreover, the Reserve banks sometimes sell securities in the open market to "make their discount rates on loans effective." By forcing banks more deeply into debt to them, the Reserve banks can make other banks feel more keenly the effect of higher Reserve bank lending charges and can use moral suasion more effectively.

On the other hand, the effectiveness of open-market security purchases by Reserve banks is by no means completely lost if member banks use most of the addition to their reserve balances to retire their indebtedness to the Reserve banks. The fact that they have been enabled to reduce their debt to the Reserve banks is likely to make member banks more willing to liberalize their credit. If banks are already virtually out of debt to the Reserve banks when open-market purchases are made, the effect is, of course, to produce a net increase in member bank reserve balances. The banks then determine the extent to which they will use the new reserves as a basis for expanded credit and the extent to which they will keep excess reserves idle.

SELECTED READINGS

See references at the end of Chapter 12.

Federal Reserve and Treasury Instruments of Credit Control

HAVING STUDIED THE COMPOSITION OF OUR MONEY SUPPLY, the nature of commercial banking operations, the nature of bank reserves, and the general functions of the Federal Reserve System, we shall now investigate the methods that may be used by the Federal Reserve and the Treasury to regulate the quantity of money and general credit conditions. We shall find that both these agencies can influence the money supply and credit conditions in three general ways: (1) through actions increasing or decreasing the volume of commercial bank reserves, thereby expanding or contracting the reserve base for checking deposits; (2) through raising or lowering the legal reserve requirements applicable to member bank deposits, thus decreasing or increasing the volume of deposits that can be supported by each dollar of reserves available to commercial banks; and (3) through actions affecting the extent to which banks actually make loans and investments and expand their deposits on the basis of any excess reserves they may have, and through actions affecting the rate at which the total money supply is spent. For example, we shall find that banks may be hesitant to make additional loans and investments and to create deposits on the basis of excess reserves supplied them by Federal Reserve and Treasury actions that increase the dollar volume of their reserves or reduce their legal reserve requirements. Supplying commercial banks with excess reserves *permits and encourages* an

expansion of bank credit, but *it does not necessitate* expansion. In various ways, especially by its own borrowing policy, the Treasury may induce the banks to expand their credit. It may also, by its borrowing and spending, increase the rapidity of circulation of existing money supplies.

In the following sections we shall examine at some length the various factors affecting the volume of bank reserves, the height of member bank reserve requirements, and the responsiveness of member banks to changes in their reserve position. We shall also investigate the extent of Federal Reserve and Treasury control over these factors. We must emphasize the fact that these central banking functions are divided between the Federal Reserve and the Treasury. Before World War I, and to a lesser extent during the decade following that war, it was almost an accepted axiom that central banks should not be subject to "political control" and that treasuries should not be allowed to interfere with the exercise of central banking functions by "independent" central banks. Practice often conflicted with principle even in the earlier period, and the principle is now almost completely shattered. In most other countries central banks have been formally brought under closer government control and in some they have been placed under the jurisdiction of the people who run the nation's treasury. The Federal Reserve still maintains its formal independence and unquestionably has some freedom to determine its policy independently of the Treasury, but it shares central banking functions with the Treasury; the latter may, if it wishes, follow policies that would defeat those of the Federal Reserve, and the Federal Reserve can hardly ignore the Treasury's wishes. Whether the increase in the Treasury's central banking powers is good or bad is a question we need not answer at this point; we must, however, emphasize the need for close coordination of Federal Reserve and Treasury actions in the performance of their central banking functions.

FACTORS DETERMINING THE VOLUME OF MEMBER BANK RESERVES

We are fortunate in this country to have an excellent and easily available statistical series showing the size of member

bank reserves and the various factors affecting their volume. These statistics, which are issued weekly by the Board of Governors, show the size of member bank reserves as of the close of business on the preceding Wednesday and analyze the factors tending to increase or decrease them. This information is carried in the major Thursday afternoon and Friday morning newspapers, in many financial publications, in the monthly *Federal Reserve Bulletin*, and in several other periodicals. In addition to the weekly figures, the *Federal Reserve*

TABLE 21. MEMBER BANK RESERVES AND RELATED ITEMS, NOVEMBER 13, 1946
(In millions of dollars)

Sources		Uses	
Discounts and advances	\$ 398	Money in circulation	\$28,760
U. S. government securities	23,684	Treasury cash holdings	2,294
Other Reserve bank credit	483	Treasury deposits with Reserve banks	577
Total Reserve bank credit	\$24,565	Non-member deposits at the Federal Reserve and other Federal Reserve accounts	1,643
Monetary gold stock	20,420		
Treasury currency	4,548	Member bank reserve balances	16,259
Total	\$49,533		\$49,533

Bulletin carries monthly and annual averages of member bank reserves and related items.¹

Table 21 presents the statement for November 13, 1946, in the form of a balance. The column on the left, headed "Sources," includes all the sources of funds that can be used as member bank reserves. If there were no competing uses for these funds, member bank reserves at any time would be equal to the sum of total Reserve bank credit outstanding plus our monetary gold stock plus Treasury currency outstanding. There are, however, competing uses of these funds, as is shown by the column on the right, headed "Uses." Some of the funds supplied by the total Reserve bank credit, the monetary gold stock, and outstanding Treasury currency are

¹ For back figures and an excellent description of this series and of the method of deriving it, see Board of Governors of the Federal Reserve System, *Banking and Monetary Statistics*, Washington, 1943, pp. 360 ff., or *Federal Reserve Bulletin*, July, 1935.

used to supply money for circulation, some to satisfy Treasury cash holdings, some to provide Treasury deposits with Reserve banks, and some to supply non-member deposits at the Reserve banks and other Federal Reserve accounts. It should be clear that member bank reserve balances at any time are equal to the total volume of funds supplied by the sources in the left column minus the amounts of those funds absorbed by other uses, as shown in the column on the right. This fact may be stated in the form of an equation:

$$\begin{array}{l}
 \left. \begin{array}{l} \text{Member bank} \\ \text{reserve balances} \\ \text{at any time} \end{array} \right\} \text{equals} \left\{ \begin{array}{l} \text{Total Reserve bank} \\ \text{credit outstanding} \\ \text{plus} \\ \text{Monetary gold stock} \\ \text{plus} \\ \text{Treasury currency} \end{array} \right\} \text{minus} \left\{ \begin{array}{l} \text{Money in circulation} \\ \text{plus} \\ \text{Treasury cash holdings} \\ \text{plus} \\ \text{Treasury deposits at Reserve} \\ \text{banks} \\ \text{plus} \\ \text{Non-member deposits at Re-} \\ \text{serve banks and other Fed-} \\ \text{eral Reserve accounts} \end{array} \right\}
 \end{array}$$

For example, Table 21 shows that on November 13, 1946, member bank reserve balances amounted to \$16,259 million; they were equal to the \$49,533 million supplied on that date by total Federal Reserve bank credit, the monetary gold stock, and Treasury currency, minus the \$33,274 million absorbed by competing uses, which includes money in circulation, Treasury cash holdings, Treasury deposits with Reserve banks, and non-member deposits at Reserve banks and other Federal Reserve accounts.

The discussion above related to the factors that determine the size of member bank reserves *as of any given date*. Changes in the size of these factors over any given period of time determine the change in the size of member bank reserve balances during that same period. Increases of total Federal Reserve credit, monetary gold stock, and Treasury currency tend to increase member bank reserves, and decreases of these "source" factors tend to decrease member bank reserves. On the other hand, increases in the amounts of funds absorbed by competing uses tend to reduce member bank reserves, and decreases in the amounts of funds absorbed by competing uses tend to increase member bank reserves. This is shown

in Table 22, which compares member bank reserves and related items on November 13, 1946, with the situation a year earlier.

This table shows that during the year preceding November 13, 1946, member bank reserves tended to be increased

TABLE 22. CHANGES IN MEMBER BANK RESERVES AND RELATED ITEMS,
NOVEMBER 14, 1945, TO NOVEMBER 13, 1946
(In millions of dollars)

	November 14, 1945	November 13, 1946	Changes Tending to Increase Member Bank Reserves	Changes Tending to Decrease Member Bank Reserves
Discounts and advances	\$ 598	\$ 398		
U. S. government securities	23,448	23,684		
Other Reserve bank credit	453	483		
Total Reserve bank credit	\$24,498	\$24,565	+67	
Monetary gold stock	\$20,034	\$20,420	+386	
Treasury currency	4,284	4,548	+264	
Money in circulation	28,178	28,761		+583
Treasury cash holdings	2,265	2,294		+29
Treasury deposits at Federal Reserve	580	577	-3	
Non-member deposits at Federal Reserve and other Federal Reserve accounts	1,799	1,643	-156	
Member bank reserve balances	15,995	16,259		
Total changes tending to increase member bank reserves			876	
“ “ “ “ decrease “ “ “				612
Net increase of member bank reserves,		\$264		

by increases of total Federal Reserve credit, monetary gold stock, and Treasury currency and by the release of funds through the reduction of Treasury deposits at the Reserve banks and of non-member deposits at the Reserve banks and other Federal Reserve accounts. On the other hand, member bank reserves tended to be reduced as additional funds were absorbed by an increase of money in circulation and of Treasury cash holdings. Member bank reserves were permitted to rise \$264 million because during the period the factors making for an increase were greater by that amount than those making for a decrease.

Anyone who wishes to understand the operation of our monetary and banking system must become thoroughly familiar with the relationships discussed in the preceding sections of this chapter. The best way to do this is to consult *Federal Reserve Bulletins* or other publications giving statistics of the types included in Tables 21 and 22 and to analyze the reasons for the behavior of member bank reserves. The following sections will analyze more fully the various factors that affect the volume of member bank reserves and will examine the methods that may be used by the Federal Reserve and the Treasury to control them.

Federal Reserve Credit

We found in the preceding chapter that an increase of Reserve bank credit tends to increase bank reserves and a decrease tends to reduce them. The item "Discounts and advances" in Table 21 refers to outstanding Reserve bank loans to banks, whether these loans were made by discounting (or rediscounting) eligible customers' paper for the banks or by making advances on the borrowing banks' own promissory notes. In some tables this item is called "Bills discounted." The item "U. S. government securities" represents the total value of these securities held by Reserve banks. We have already seen that by increasing or decreasing their security holdings the Reserve banks can increase or decrease the volume of member bank reserves. This is true whether the securities are purchased from or sold to member banks or others.² "Other Reserve bank credit" is made up of several parts. One is Reserve bank holdings of acceptances purchased in the open market. When the Reserve banks purchase acceptances they issue deposit credits in payment, and when they sell acceptances or collect on them at maturity they reduce deposits with themselves. In some tables the Reserve bank holdings of acceptances are shown separately under the heading "Bills bought." "Industrial advances," or Reserve bank loans to borrowers other than banks, are also a component of

² See p. 264.

Other Reserve bank credit" and are a method of creating deposits at the Reserve banks. Most of the remainder of "Other Reserve Bank credit" is usually called "float." This arises in the collection process when the Reserve banks credit the accounts of depositing banks before deducting from the accounts of the banks that are to make payment. Suppose, for example, that Bank A deposits \$100,000 of checks with the Reserve banks and that this amount is credited to the bank's reserve account two days before it is deducted from the reserve accounts of the banks on which the checks are drawn.

TABLE 23. OUTSTANDING FEDERAL RESERVE CREDIT ON SELECTED DATES

	Monthly Averages in Millions of Dollars					
	August, 1917	October, 1920	July, 1924	September, 1929	October, 1939	March, 1947
Discounts and advances	\$134	\$2780	\$315	\$ 969	\$ 6	\$ 307
Bills bought	159	303	44	229	0	0
U. S. government securities	74	305	467	165	2763	22,978
Other Reserve bank credit	88	134	53	64	63	436
Total Reserve bank credit	\$455	\$3522	\$879	\$1427	\$2832	\$23,721

During this two-day period the Reserve banks will have increased total member bank reserves by \$100,000. The "float" item is not large, however, and does not fluctuate very much, so we need not discuss it further.

"Total Reserve bank credit" is the sum of all the types of Reserve bank credit discussed above; it represents the total contribution of the Reserve banks to the funds available for use as member bank reserves or for competing purposes. It will be noted that in November, 1946, the Reserve banks were supplying nearly half of all the funds available for these purposes—\$24,565 million out of a total of \$49,533 million. But Table 23, which shows only a few of the major fluctuations of Federal Reserve credit, indicates how greatly the Reserve banks can change the amount of their contributions to the monetary base. For example, in October, 1920, the Reserve banks were contributing nearly \$3 billion more to the supply of funds available for member bank reserves and

other competing uses than they were in August, 1917. And between October, 1920, and July, 1924, they withdrew more than \$2600 million of these funds by reducing total Federal Reserve credit. Fluctuations in the volume of Reserve bank credit since that time have been frequent and sometimes very large.

Though an expansion of total Reserve bank credit provides funds for use as member bank reserves or for competing purposes regardless of the type of assets that the Reserve banks take in exchange, it must be remembered that the effect on general credit conditions depends somewhat on how the Reserve banks extend their credit. This is because of the institutional factor mentioned earlier—the tradition against continuous borrowing by banks. “Banks do not like to be in debt; and, therefore, when a member bank is borrowing, it feels under pressure to liquidate assets or, at least, is discouraged from extending credit. When one bank sells assets, reserves are drawn from some other bank or banks, which in turn may have to borrow.”³ We find, therefore, that if member banks can maintain their reserve position only by borrowing heavily from the Reserve banks they are likely to tighten credit and lend only at high interest rates. The correlation between the height of short-term interest rates in the open market and the volume of member bank borrowings from the Reserve banks is high indeed.⁴ On the other hand, when Reserve banks expand their credit by purchasing acceptances or government securities in the open market, member banks enjoy increased reserves without increasing their debts to the Reserve banks and are therefore likely to extend loans or buy securities at lower interest rates.

We have already examined the principal instruments with which the Federal Reserve System can control the volume of its credit outstanding. Its principal controls over its loans to banks are its discount rates and moral suasion or direct action. It can discourage bank borrowing from it by raising its dis-

³ Board of Governors of the Federal Reserve System, *Banking and Monetary Statistics*, Washington, 1943, p. 361.

⁴ See W. R. Burgess, *Reserve Banks and the Money Market*, Harper, New York, 1936, pp. 219–221.

count rates or by using moral suasion to urge or even force banks to get out of debt to it. It can encourage such borrowing by lowering its discount rates and by urging banks to borrow to meet all legitimate demands for loans. The Reserve banks' principal means of control over their acceptance holdings is the "bill buying rate"—the discount rate at which they buy acceptances in the open market. The System can increase its acceptance holdings by reducing the bill buying rate and it can reduce them by raising this rate. The Federal Open-Market Committee determines the amounts and types of government securities to be bought or sold by the Reserve banks. These, then, are the instruments with which the Board of Governors and the Reserve banks can control the volume of Federal Reserve credit outstanding.

Monetary Gold Stock

Since the effective date of the Gold Reserve Act of 1934, all the monetary gold in this country has been held by the Treasury. Our monetary gold stock at any time is therefore equal to the value of the Treasury's gold holdings. The monetary gold stock is one of the major sources of funds for use as member bank reserves or for other competing purposes. This is true even though the gold itself is buried at Fort Knox, for the Treasury ordinarily issues gold certificates equal to the value of its gold holdings, including that in the Fort Knox vaults, and these certificates are held by the Reserve banks.⁵ That this is true can be shown by tracing a transaction in which the National City Bank imports 100 million dollars' worth of gold from France. Upon receipt of the gold the National City will send it, as required by law, to the Reserve bank, which will add \$100 million to the National City's reserve account. The Reserve bank will then send the gold to the Treasury, which in return will give it \$100 million in gold certificates. The Treasury may then store the gold at Fort Knox. But though the gold is buried at Fort Knox the effect of its entry into the monetary system has been to increase member bank reserves by \$100 million and to increase by the

⁵ We shall deal later with the case in which the Treasury "sterilizes" gold.

same amount Reserve bank reserves in the form of gold certificates. Conversely, a reduction in our monetary gold stock tends to reduce member bank and Reserve bank reserves by a corresponding amount. Suppose, for example, that the Chase National Bank exports 100 million dollars' worth of gold. Not possessing the gold itself, it will have to secure the metal through the Reserve banks and will give a check on its reserve account in payment, thereby reducing its reserves. And the Reserve banks will surrender \$100 million of gold certificates

TABLE 24. THE MONETARY GOLD STOCK OF THE UNITED STATES
ON SELECTED DATES
(In millions of dollars)

Date	Monetary Gold Stock	Change from Preceding Date
August, 1917	\$ 2,896	
November, 1924	4,230	\$ +1,334
August, 1928	3,831	-399
September, 1931	4,688	+857
January, 1934	4,036	-652
November, 1941	22,786	+18,750
March, 1947	20,406	-2,380

to the Treasury in payment for the metal. Thus the effect of the withdrawal of monetary gold is to reduce member bank and Reserve bank reserves by an equivalent amount.

We have already noted that the monetary gold stock is one of the principal sources of funds usable as member bank reserves or for competing purposes. That our monetary gold stock has fluctuated widely is shown by Table 24; even this table shows only the principal fluctuations. The increases and decreases before 1934 reflect changes in the physical amount of gold held in the monetary system, for the price of gold remained constant during that period. But the great increase following January, 1934, was a resultant of (1) the great increase in the physical quantity of gold in our monetary system, and (2) the rise in the price of gold from \$20.67 to \$35 an ounce.⁶

We cannot list here all the direct and indirect ways in which

⁶ See pp. 138-141.

government policy can affect the size of our monetary gold stock, but we can examine the most direct controls. We shall see later that the Federal Reserve System can attract gold by restrictive credit policies that raise interest rates and lower our national income, and that it can repel gold by liberal credit policies that lower interest rates and increase our national income. In general, however, its influence on our gold supply is indirect and results from its general credit policies.⁷ The Treasury's principal influence on the monetary gold stock is exercised through its power to change the price of gold.⁸ An increase in the price of gold, such as the 1934 increase from \$20.67 to \$35 an ounce, tends to increase the value of the monetary gold stock in three ways: (1) by increasing the monetary value of our existing gold stocks, (2) by increasing the physical output of our gold mines and by increasing the money value of each ounce of gold produced, and (3) by inducing gold imports from other countries.

We saw in Chapter 7 that the Treasury held nearly 196 million ounces of gold in January, 1934. By increasing the price of gold from \$20.67 to \$35 an ounce, the value of this gold stock was immediately raised from about \$4 billion to about \$6805,000,000, all the increase accruing to the Treasury as a revaluation profit. This \$2,805,000,000 increase in the money value of the monetary gold stock did not immediately and directly increase member bank reserves; instead, all of it was immediately added to Treasury cash holdings and was reflected in bank reserves only to the extent that the Treasury paid out the new funds. We shall return to this subject in our discussion of Treasury cash holdings.

The higher gold price increased the rate of gold output in this country by bringing in production that was not profitable with gold at \$20.67 an ounce but that became profitable with the metal at \$35 an ounce. And each additional ounce of gold added \$35 rather than \$20.67 to the value of the monetary gold stock.

The ways in which an increased price for gold in this

⁷ An exception is Reserve bank purchases and sales of foreign assets, which will be discussed later.

⁸ See chap. 7, especially pp. 129-141.

country tends to induce gold imports from abroad are complex and cannot be fully understood until we have discussed foreign-exchange rates. At this point we shall merely note that an increase in the dollar price of gold amounts to a decrease in the gold value of the dollar, and that this decline in the dollar made it less expensive for foreigners to buy here and more expensive for Americans to buy abroad, with the result that our balance of trade became more favorable and gold flowed in to settle the balance.

We have never yet reduced the price of gold in terms of dollars and such an action seems unlikely. If it should occur, however, it would tend to reduce the dollar value of our monetary gold stock in ways that are the converse of those explained above.

Treasury Currency Outstanding

A third source of funds usable for member bank reserves, money in circulation, and other competing purposes is outstanding Treasury currency. This represents the types of money for which the Treasury is primarily responsible—silver dollars and silver certificates, other coin, United States notes (greenbacks), Federal Reserve bank notes, and national bank notes. We must avoid the common mistake of believing that an increase in the amounts of these types of money outstanding leads to a corresponding increase in the total amount of coin and currency in circulation. The fact is that such an increase usually has the effect of increasing member bank reserves. Suppose, for example, that the Treasury issues an additional \$100 million of money in the form of greenbacks, silver certificates, or coin. It usually issues the money by depositing it with the Reserve banks and taking in payment deposit accounts. Then when it writes checks on these Reserve bank deposits the funds are transferred to member bank reserve accounts. The Reserve banks may, and probably would, pay the new currency into circulation and retire an equal amount of Federal Reserve notes, but the total amount of coin and currency in circulation would not be directly affected by the new Treasury issue; the effect would be to raise bank re-

serves. Even if the Treasury initially paid the new currency into circulation, the effect would be, in the absence of an increased demand for coin and currency for circulation, that the extra currency would flow back to banks and be sent to the Reserve banks to be added to reserve balances. Whenever it is proposed that outstanding Treasury currency be increased, we should remember that the effect will be to add to commercial bank reserves and to permit, though not necessitate, a multiple expansion of checking deposits. Conversely, a decrease of Treasury currency outstanding tends to decrease the volume of funds available for use as member bank reserves or for competing purposes.

Table 25 compares the amount of Treasury currency out-

TABLE 25. TREASURY CURRENCY OUTSTANDING
(In millions of dollars)

Types	December 31, 1932	September 30, 1946	Change
Silver dollars and silver certificates	\$540	\$2403	+\$1863
Other silver and minor coin	435	1229	+794
U. S. notes (greenbacks)	347	347	0
Federal Reserve bank notes	3	456	+453
National bank notes	711	113	-598
Total	\$2036	\$4548	+\$2512

standing at the end of 1932, before the New Deal monetary legislation, with the amount at the end of September, 1946. It will be noted that by far the largest part of the increase resulted from the issue of silver dollars and silver certificates, mostly the latter, as a result of the silver-buying policies of the Treasury. The Treasury can regulate the quantity of this type of its outstanding currency in three ways: (1) by regulating the physical quantity of silver purchased, (2) by raising or lowering the price at which it purchases silver, and (3) by retaining or paying out its profit on silver purchases. According to the law, the Treasury must pay out an amount at least equal to the cost of the silver purchased. It can therefore increase the outstanding quantity of silver coins and silver certificates by increasing the physical quantity of silver purchased or by raising the price of silver, or both. It can also

affect the volume of this money by its disposition of its silver profits. Suppose, for example, that the Treasury purchases 100 million ounces of silver at 90.5 cents an ounce, a total cost of \$90,500,000. It must issue new money to this amount. But this silver can be coined into 129 million silver dollars or used to back silver certificates of that amount, so the Treasury has a potential profit of \$38,500,000. By hoarding the silver representing this profit, the Treasury can prevent its amount from entering bank reserves, but by paying it out the Treasury can add it to bank reserves.

It seems likely that in the future the principal variations in total Treasury currency will result from silver purchases. The Treasury has never employed the power given it by Congress in 1933 to issue an additional quantity of greenbacks not to exceed \$3 billion. It is expected that both Federal Reserve bank notes and national bank notes will be retired within the next few years, thereby tending to reduce to some extent the Treasury currency outstanding.

Relationship of Federal Reserve Credit, the Monetary Gold Stock, and Treasury Currency

We find, then, that the total volume of funds available for use as coin and currency in circulation, member bank reserves, Treasury holdings of cash, Treasury deposits at the Federal Reserve, and non-member deposits at the Federal Reserve is composed of the total of outstanding Federal Reserve credit, the monetary gold stock, and Treasury currency. This is sometimes called "the monetary base." But how valid is the widely held belief that the size of this base depends solely upon and varies with the monetary gold stock? Table 26 shows that it is erroneous. The monetary gold stock is, as we have seen, an important source of funds, and its variations tend to effect changes in the monetary base. But Federal Reserve credit and Treasury currency must not be forgotten. During some periods they have varied in such a way as to offset wholly or in part the fluctuations of the monetary gold stock. This is shown in Table 26 for the periods November, 1924, to August, 1928; August, 1928, to September, 1931;

September, 1931, to January, 1934; and November, 1941, to March, 1947. In other cases, however, Federal Reserve credit and Treasury currency have varied in such a way as to reinforce changes in the monetary gold stocks. This occurred from August, 1917, to November, 1924, and during several shorter periods.

TABLE 26. RELATIONSHIP OF MONETARY GOLD STOCK, TOTAL FEDERAL RESERVE CREDIT, AND TREASURY CURRENCY IN SELECTED PERIODS
(In millions of dollars)

Period	Change in Monetary Gold Stock	Change in Total Federal Reserve Credit	Change in Treasury Currency	Change in Total Monetary Gold Stock, Total Federal Reserve Credit, and Treasury Cur- rency
Aug., 1917, to Nov., 1924	+\$1,334	+\$ 680	+\$ 120	+\$2,134
Nov., 1924, to Aug., 1928	-399	+350	-16	-65
Aug., 1928, to Sept., 1931	+857	-378	+17	+496
Sept., 1931, to Jan., 1934	-652	+1,549	+279	+1,176
Jan., 1934, to Nov., 1941	+18,750	-345	+1,063	+19,468
Nov., 1941, to Mar., 1947	-2,830	+21,410	+1,332	+19,912

We can now analyze the various uses of the funds supplied by the monetary gold stock, Federal Reserve credit, and Treasury currency.

Money in Circulation

Money in circulation includes all coin and currency outside the Reserve banks and the Treasury, that is, the amounts held by commercial banks and the public in general. Commercial bank holdings are small, however, and do not fluctuate very much; so most of this coin and currency is outside the commercial banking system and its amount reflects the de-

mands of the public for money in these forms. Neither the Federal Reserve nor the Treasury has any direct control over the quantity of coin and currency in circulation; each person is free to determine for himself the extent to which he will hold coin and currency and the extent to which he will exchange this type of money for bank deposits. The monetary authorities can influence the quantity of coin and currency demanded by the public only indirectly through their general effects on the volume of business activity, the value of retail trade, the size of payrolls, and the general confidence in the safety of banks.

It is essential to note that the use of funds to supply "money in circulation" prevents the use of the same funds for member bank reserves; these two uses are competitive. An increase in the money in circulation tends to reduce bank reserves, for the banks secure the coin or currency for their customers by drawing on their reserve balances at the Reserve banks. On the other hand, a decrease in the coin or currency in circulation tends to increase member bank reserves, for the excess money is shipped to the Reserve banks to be credited to member bank reserve accounts.

It is also important to remember that an increase in the public's desire to hold money in the form of coin or currency rather than checking deposits can exert a strong deflationary pressure on the total money supply. A dollar of coin or currency held by the public supports only one dollar of money, whereas a dollar reduction in bank reserves may force a multiple contraction of deposits. The truth of this statement was demonstrated in the period from late 1930 to March, 1933, when the surge of bank failures was accompanied by a growing distrust of banks. In the early part of 1930 before confidence in banks waned, the amount of coin and currency held by the public averaged about \$4300 million. By February, 1933, however, another \$2 billion in coin and currency had been withdrawn from the banks, thereby draining bank reserves and accentuating the deflationary trend. On the other hand, a reduction in the coin and currency in circulation tends to increase bank reserves and to liberalize credit.

We noted in an earlier chapter that the amount of coin and currency in circulation undergoes fairly wide seasonal fluc-

tuations and that under the pre-1914 National Banking System these increases and decreases tended to decrease and increase bank reserves and to disturb credit conditions. These seasonal fluctuations of the money in circulation no longer exert a marked effect on credit conditions, because the Reserve banks often vary the amount of their credit in such a way as to offset them wholly or partially. For example, the Reserve banks can purchase acceptances or government securities and completely offset a seasonal rise in the money in circulation. It must not be inferred, however, that all changes in the quantity of coin and currency in circulation are offset by changes in the volume of Reserve bank credit.

Treasury Cash Holdings and Treasury Deposits at the Reserve Banks

Because they are so closely related and because their fluctuations have the same effects on the general credit and monetary situation, we shall consider together Treasury cash holdings and Treasury deposits at Reserve banks. Both of these uses of funds are competitive with member bank reserves; increases in both tend to reduce these reserves, and decreases in both tend to increase them. Through this power to increase and decrease its holdings of cash and deposits at the Reserve banks the Treasury can exert a marked influence on the size of member bank reserves.

The Treasury can determine the quantity of funds in its possession and the form in which it will hold those funds. It may hold them in any one of three general forms: (1) as cash in its own vaults, (2) as deposits at the Reserve banks, and (3) as deposits with commercial banks. By adding to its holdings of cash in its own vaults or of deposits at the Reserve banks, the Treasury tends to drain funds from member bank reserves, for it adds to its holdings by depositing with the Reserve banks checks drawn on member banks. These are then deducted from member bank reserves. On the other hand, it can transfer funds to member bank reserves by depositing with member banks or by giving to customers of these banks checks drawn on its deposits at the Reserve banks.

The principal classes of Treasury funds that may be man-

aged in this way are the following: (1) general funds, (2) trust accounts of social insurance programs, (3) the Exchange Stabilization Fund, and (4) the inactive gold account. By collecting taxes in excess of expenditures or by selling enough additional securities, the Treasury can build up its general funds and then hold at least part of it as Treasury cash or as deposits with the Reserve banks, thereby reducing bank reserves. Or it may pay out general funds already accumulated in these forms, thereby adding to bank reserves. A large volume of funds comes into the control of the Treasury each year because of its administration of federally sponsored social insurance plans. These could be used to influence member bank reserves; they could be held as cash in Treasury vaults or as deposits at the Reserve Banks, or they could be spent for government securities.

We saw earlier that the Treasury reaped a profit of \$2805 million in the revaluation of gold in January, 1934. All of this immediately appeared as increased Treasury cash holdings and did not directly affect member bank reserves. Soon thereafter an Exchange Stabilization Fund was created with \$2 billion of the gold profit. By its administration of this Fund the Treasury can affect the volume of bank reserves as well as the behavior of foreign-exchange rates. The Fund may be held as Treasury cash, as deposits at the Reserve banks, or as acceptances, securities, and other assets purchased in the market. By purchasing acceptances and other assets in the market, thereby reducing Treasury cash or Treasury deposits at the Reserve banks, the Fund can increase member bank reserves in much the same way that Reserve bank open-market purchases of securities increase bank reserves. And by selling acceptances and other assets, thereby increasing Treasury cash or Treasury deposits at the Reserve banks, the Fund can decrease bank reserves.⁹

Although the inactive gold account was used during only a short period extending from December, 1936, to March, 1938, it merits close consideration because of its possible use in the future. We have already noted that following the increase in

⁹ Actually, the Fund's deposits at the Reserve banks is classified under "Non-member deposits at the Federal Reserve," but it is discussed here because of its close similarity to other Treasury operations.

the gold price in January, 1934, this country suffered a golden avalanche.¹⁰ Our monetary gold stock rose from \$6800 million immediately after the revaluation to more than \$11 billion in December, 1936, member bank reserves soared, and it was feared that serious inflation would result. The Secretary of the Treasury therefore announced, on December 31, 1936, a new "gold sterilization policy." Further gold acquisitions were not to be allowed to increase member bank reserves but were to be placed in an "inactive gold account." In effect, the sterilization of the new gold was accomplished as follows: The Treasury sold to member banks and to the customers of these banks additional government securities equal to the amount of the gold inflow, and the amounts of the checks received by the Treasury were deducted from member bank accounts at the Federal Reserve. The expansionary effects of the increase of the gold stock were completely offset by the sale of Treasury securities and the increase of Treasury cash holdings in the form of the inactive gold account. Between December, 1936, and late 1937 the Treasury sterilized nearly \$1400 million of gold acquisitions in this way. Early in 1938, however, when business was receding and it became the avowed policy of both the Federal Reserve and the government to expand bank reserves and maintain very easy credit conditions, the Treasury ended its gold sterilization policy and "desterilized" all the gold in its inactive gold account. It deposited with the Reserve banks additional gold certificates equal to the amount of gold previously sterilized and then checked out the funds to meet government expenses and retire securities, thereby adding funds to bank reserves.

A similar policy might be useful in the future if Federal Reserve powers should prove inadequate to check an over-expansion.

Non-Member Deposits at Reserve Banks and Other Federal Reserve Accounts

This item also represents a competitive use of funds supplied by total Reserve Bank credit, the monetary gold stock,

¹⁰ See p. 138.

and the Treasury currency outstanding. Increases in it tend to reduce member bank reserves, and decreases in it to release funds to be added to member bank reserves. This item is not large and fluctuates only little, so it is not an important cause of fluctuations in member bank reserves and need not concern us further.

Summary of Factors Affecting the Volume of Member Bank Reserves

We have now examined all the various factors that directly determine the volume of reserves available to member banks. We have found that member bank reserves at any time are equal to the sum of total Reserve bank credit outstanding plus the monetary gold stock plus Treasury currency outstanding minus the total of the following—money (coin and currency) in circulation plus Treasury cash holdings and Treasury deposits at the Reserve banks plus non-member deposits at Reserve banks and other Federal Reserve accounts. The change in member bank reserves over any period of time reflects changes in these factors. The ability of the Federal Reserve and the Treasury to control the total money supply and credit conditions is largely, though not solely, derived from their ability to regulate some of these factors, thereby influencing the quantity of reserves available to banks.

MEMBER BANK RESERVE REQUIREMENTS

In an earlier chapter we found that the maximum volume of deposits that a commercial banking system may have outstanding at any time depends not only on the dollar volume of its legal reserves, but also on the height of the minimum legal reserve requirements against deposits.¹¹ With a 10 per cent minimum legal reserve-deposit ratio, \$1 of reserves will support \$10 of deposits; with a 20 per cent legal minimum, \$1 of reserves will support only \$5 of deposits. The Federal Reserve System employs this principle in its monetary and

¹¹ See pp. 178–183.

credit regulation. To discourage monetary and credit expansion it can raise member bank legal reserve requirements, and to encourage expansion it can lower these requirements.

Prior to 1935 member bank reserve requirements were fixed by the Federal Reserve Act and could not be altered by Federal Reserve officials.¹² In the banking act of that year, however, the Board of Governors was given the power to change member bank legal reserve requirements, with the provision that these requirements might not be set below those previously in effect nor could they be more than double those previously in effect. Thus, the Board of Governors may set legal reserve requirements of member banks at or between the following levels:¹³

	Lowest Level of Requirements	Highest Level of Requirements
On net demand deposits		
Central reserve city banks	13%	26%
Reserve city banks	10	20
Country banks	7	14
On time deposits		
All member banks	3	6

That the board has used this power several times is shown in Table 27. In three steps reserve requirements were raised in 1937 to the highest level permitted by law to discourage what was then considered an excessively rapid expansion of bank credit. They were lowered slightly in 1938 to give member banks more excess reserves, and then raised to the maximum again in late 1941 to damp somewhat the boom accompanying our rearmament program. From 1941 up to the present writing the only changes have been slightly to lower the reserve requirements against demand deposits at central reserve city banks; all the other requirements have remained at the maxi-

¹² Limited power to alter reserve requirements was granted by legislation enacted in 1933.

¹³ In general, central reserve city banks are those in New York and Chicago; reserve city banks are those in about 60 other large cities; and country banks are those located outside the central reserve and reserve cities. In some cases, however, banks in the outlying sections of large cities may qualify for lower reserve requirements. Thus, banks in the boroughs of Brooklyn and the Bronx are classified as reserve city banks and those in the boroughs of Queens and Richmond as country banks.

num levels permitted by law. Thus, at the end of the war the Federal Reserve had left only little power to tighten credit by raising reserve requirements, but it could, if it wished, increase member banks' excess reserves to a considerable extent by lowering their reserve requirements. Many economists

TABLE 27. MEMBER BANK RESERVE REQUIREMENTS
(Per cent of deposits)

PERIOD IN EFFECT	NET DEMAND DEPOSITS ^a			TIME DEPOSITS (ALL MEMBER BANKS)
	Central Reserve City Banks	Reserve City Banks	Country Banks	
June 21, 1917-Aug. 15, 1936	13	10	7	3
Aug. 16, 1936-Feb. 28, 1937	19 $\frac{1}{2}$	15	10 $\frac{1}{2}$	4 $\frac{1}{2}$
Mar. 1, 1937-Apr. 30, 1937	22 $\frac{3}{4}$	17 $\frac{1}{2}$	12 $\frac{1}{4}$	5 $\frac{1}{4}$
May 1, 1937-Apr. 15, 1938	26	20	14	6
Apr. 16, 1938-Oct. 31, 1941	22 $\frac{3}{4}$	17 $\frac{1}{2}$	12	5
Nov. 1, 1941-Aug. 19, 1942	26	20	14	6
Aug. 20, 1942-Sept. 13, 1942	24	20	14	6
Sept. 14, 1942-Oct. 2, 1942	22	20	14	6
Oct. 3, 1942 and after	20	20	14	6

^a Demand deposits subject to reserve requirements, i.e., demand deposits other than war loan deposits, minus cash items in process of collection and demand balances due from domestic banks.

believe that the power of the Board of Governors to alter member bank reserve requirements should be greatly broadened.

During the entire period in which the Board of Governors has had the power to alter member bank reserve requirements the member banks have had large amounts of excess reserves, primarily because of the golden avalanche and heavy Reserve bank holdings of government securities. Under these conditions an increase in member bank reserve requirements tends to limit the expansion of bank credit in two ways: (1) It reduces the excess reserves of member banks by increasing the dollar volume of reserves required to support existing deposits, and (2) it decreases the amount of deposit expansion possible on the basis of each dollar of remaining excess reserves. On the other hand, a reduction in these reserve re-

quirements tends to ease credit both (1) by increasing member banks' excess reserves through decreasing the dollar volume of reserves required to support existing deposits, and (2) by increasing the volume of additional deposits that can be created on the basis of each dollar of excess reserves.

THE EFFECTIVENESS OF CONTROL MEASURES AFFECTING THE VOLUME OF BANK RESERVES AND THE HEIGHT OF RESERVE REQUIREMENTS

Having examined the methods that may be used by the Federal Reserve and the Treasury to alter the volume of bank reserves and the height of reserve requirements, we must now ask, "How effective are these instruments of control?" The answer is that their effectiveness depends greatly on existing conditions. We shall consider restrictive and liberalizing actions separately.

Effectiveness of Restrictive Measures

Under some circumstances the Federal Reserve alone, without Treasury assistance, can halt a credit expansion and even induce a contraction if it wishes to do so. For example, in the fall of 1929 member banks had almost no excess reserves and owed the Reserve banks nearly \$1 billion. Moreover, the Reserve banks still owned over 400 million dollars' worth of acceptances and government securities. It seems almost certain that the Federal Reserve could have raised interest rates to high levels, curtailed bank credit, and forced a reduction of the money supply if it had been willing to raise its discount rates abruptly, to castigate the banks severely for their heavy borrowing at the Reserve banks, to raise the bill buying rate, and to sell its government obligations. The situation in early 1941 was far different, however. Despite the fact that their legal reserve requirements had been raised almost to the maximum, member banks still had nearly \$7 billion of excess reserves and were practically out of debt to the Reserve banks. The Reserve banks held only about \$2300 million of accept-

ances and government securities. Thus, member banks would still have had nearly \$3 billion of excess reserves if the Federal Reserve had raised reserve requirements to the maximum and had sold all its acceptances and government securities. Under these circumstances the effectiveness of restrictive Federal Reserve actions alone would have been very limited. The Treasury, however, could have helped by lowering the price of gold, by ceasing to buy silver, and by building up its cash holdings and its deposits at the Reserve banks.

It seems almost certain that an aggressive and cooperative program by the Federal Reserve and the Treasury can, by lowering the dollar volume of bank reserves and by increasing legal reserve requirements, check an overexpansion of money and credit. But it is not so clear that they will always find it easy to do this without inducing a dangerous contraction. Credit control is a delicate operation. If measures are too weak they are likely to be ineffective in halting an excessive expansion; if they are too severe, they may raise interest rates too much and restrict credit so much that spending, employment, production, and prices are started on a cumulative decline.

Effectiveness of Liberalizing Measures

The effectiveness of Federal Reserve and Treasury actions aimed at expanding bank credit and the money supply by increasing bank reserves and decreasing the reserve requirements also vary with economic conditions. These measures seek to induce a credit expansion by increasing member bank reserves or at least enabling member banks to maintain a comfortable reserve position without going deeply into debt to the Reserve banks. They *permit* commercial banks to expand their loans, security holdings, and deposits if they wish to do so. They do more than this; by giving banks excess reserves which yield no income, they encourage the banks to seek profitable opportunities for lending or for buying income-yielding assets of other types. In normal periods when banks have confidence in their borrowers and in the safety of securities, and when the demand for loans is brisk, an addition

to the excess reserves of banks is likely to induce an actual expansion of credit. Such measures may be much less successful in periods of recession or depression. Banks may distrust the safety of loans or securities, and businessmen may be unwilling to borrow because of the uncertain profit outlook. Under these circumstances banks may accumulate a great volume of excess reserves and expand their loans, security holdings, and deposits very little or not at all in the short run.

It should not be inferred, however, that the failure of bank credit to expand quickly in response to liberalizing Federal Reserve and Treasury measures means that these measures are complete failures and should not be undertaken. It seems almost certain that measures that supply banks with large excess reserves remove at least some of the pressure on them to reduce their credit, make them more willing to purchase securities and make loans, and cause business to recover sooner than it would if the banks did not have the excess reserves. Monetary measures of this type are a highly desirable part of a recovery program; but taken alone, they may not be sufficient.

FEDERAL RESERVE AND TREASURY ACTIONS TO REGULATE THE EXTENT TO WHICH BANKS UTILIZE THEIR RESERVES

We have just seen that banks may not, in depression periods, lend up to the limit of their reserves. There are many ways by which the Federal Reserve and the Treasury can induce an actual expansion of bank loans and security holdings; we can examine only a few. The Federal Reserve may insure the safety of loans or at least share in the risk of loans made by banks. In a similar way, the Federal Housing Administration insures home mortgages, and the Reconstruction Finance Corporation participates in the risks on business loans. If other borrowers are unwilling to borrow and to spend sufficient funds to finance a high level of employment, the Treasury itself may deliberately run a deficit and borrow funds to be spent for unemployment relief or public works.

It may also do this to speed up the rate of spending of already existent money.

This is not the place to discuss Treasury fiscal policy in detail. We shall merely point out that monetary policies of the types discussed in earlier sections of this chapter are more and more being supplemented by and coordinated with Treasury policies relative to taxation, spending, and borrowing.

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Objectives of Federal Reserve Credit Policies

THE PRIMARY PURPOSE OF THIS CHAPTER IS TO EXAMINE THE objectives of Federal Reserve policies in the past—the ends that the System has tried to attain through the use of its credit control powers. Before beginning our study of this topic, however, we should review briefly the types of actions that may be taken by the Federal Reserve and the Treasury to restrict or to liberalize credit.

SUMMARY OF FEDERAL RESERVE AND TREASURY INSTRUMENTS OF CREDIT CONTROL

Restrictive Actions

The outline below shows the principal types of actions that may be taken by the Federal Reserve and the Treasury to make banks less willing to lend or to buy securities, to raise interest rates charged by banks and others, and in general to slow down an expansion or to induce a contraction of the money supply. These actions may be used singly or in various combinations with each other.

RESTRICTIVE ACTIONS BY THE FEDERAL RESERVE

Instrument	Action Taken	Effects of Action
Discount rates on loans to banks.	Increase discount rates.	Discourages member bank borrowing from the Reserve banks, both by increasing the costs of borrowing and by indicating Federal Reserve opposition to easy credit. The effectiveness of this action usually varies with the extent of member bank indebtedness to the Reserve banks.
Moral suasion or direct action.	Discourage banks from borrowing at the Reserve banks and plead with them to restrict their own credit.	Makes banks less willing to lend liberally and encourages them to attempt to curtail their credit in order to repay the Reserve banks. This instrument is not likely to be very effective unless banks are in debt to the Federal Reserve.
Bill buying rate (discount rate applicable to Federal Reserve purchases of acceptances in the open market).	Raise the rate.	Tends to decrease the volume of acceptances sold to the Reserve banks, thereby reducing bank reserves.
Open-market operations in government securities.	Sell securities in the open market.	Tends to reduce bank reserves, or at least to force banks to borrow more heavily from the Reserve banks in order to maintain their reserve positions.
Change of member bank reserve requirements.	Raise reserve requirements.	Tends to restrict credit (1) by lowering member bank excess reserves, and (2) by decreasing the amount of expansion possible on the basis of each dollar of remaining excess reserves.

RESTRICTIVE ACTIONS BY THE TREASURY

Instrument	Action Taken	Effects of Action
Price of gold.	Lower the price of gold.	Has never been done and is not now possible without an act of Congress. But it might be used to reduce the monetary value of our existing gold stock, to discourage domestic gold production, and to discourage further gold imports or even to induce gold exports.
Treasury currency outstanding (silver dollars and silver certificates, other coin, greenbacks, Federal Reserve bank notes, and national bank notes).	At least cease silver purchases and if possible retire some of the outstanding Treasury currency.	Is politically difficult to accomplish and not likely to prove very feasible, but it could be used to limit the volume of bank reserves.
Treasury cash holdings and Treasury deposits at the Reserve banks.	With funds secured through taxation or the sale of securities, build up an "inactive gold account" or Treasury holdings of other cash, or build up Treasury deposits at the Reserve banks.	The most flexible method the Treasury has of absorbing funds from the market and of reducing bank reserves.

The above outline shows the various steps that can be taken by the Federal Reserve and the Treasury to restrict the lending powers of commercial banks. In a later chapter we shall examine in some detail the other influences of Treas-

ury taxation, spending, and borrowing policies on the supply of money and the speed with which it is spent.

Liberalizing Actions

The following outline shows the principal actions that may be taken by the Federal Reserve and the Treasury to increase the lending power of commercial banks, to make banks more willing to lend, to lower interest rates, and in general to slow down a contraction or to induce an expansion of the money supply.

LIBERALIZING ACTIONS BY THE FEDERAL RESERVE

Instrument	Action Taken	Effects of Action
Discount rates on loans to banks.	Decrease discount rates.	Both by reducing the cost of borrowing and by signifying the willingness of the Reserve banks to lend, a reduction of discount rates tends to lessen the pressure on banks to retire their indebtedness to the Federal Reserve. But because of the persistence of the tradition against continuous borrowing, banks are not likely to be induced to increase their borrowings.
Moral suasion.	Encourage banks to borrow from the Reserve banks and to lend liberally.	May encourage banks to liberalize their lending, but it is likely to be relatively ineffective in inducing an actual expansion of bank credit.
Bill buying rate.	Reduce the rate.	Tends to increase the quantity of acceptances offered to the Reserve banks and to increase bank reserves.
Open-market operations in government securities.	Purchase securities in the open market.	Tends to increase bank reserves, or at least to permit banks to reduce their indebtedness to the Reserve banks. In either case these Reserve bank purchases, if on a sufficient scale, are likely to ease credit.

LIBERALIZING ACTIONS BY THE FEDERAL RESERVE

Instrument	Action Taken	Effects of Action
Change of member bank reserve requirements.	Reduce reserve requirements.	Tends to ease credit conditions both (1) by increasing the excess reserve of member banks, and (2) by increasing the volume of deposits that can be created on the basis of each dollar of excess reserves.

LIBERALIZING ACTIONS BY THE TREASURY

Price of gold.	Increase the price of gold.	Tends to increase the money value of the monetary gold stock (1) by raising the money value of the existing gold stocks, (2) by increasing domestic gold production and enabling each ounce of new gold to add more money value to the gold stock, and (3) by inducing gold imports.
Treasury currency outstanding.	Increase the quantity of outstanding Treasury currency, including silver-based money.	Increases member bank reserves. But, because of the political activities of silver sellers, the control of silver money is clumsy and may easily be used against the public interest and for the benefit of silver producers.
Treasury cash holdings and Treasury deposits at the Reserve banks.	Reduce both Treasury cash holdings and Treasury deposits at the Reserve banks.	Increases member bank reserves. But it can be used only to the extent that the Treasury enters the period in possession of such holdings.

We have already seen that liberalizing actions of the types indicated above operate largely by increasing the excess reserves of banks and making possible the creation of more bank deposits on the basis of each dollar of available reserves. They permit, and even to some extent induce, an increase of bank

loans, investments, and deposits. If, however, the banks are either unwilling or unable to utilize their full lending power, several types of supplementary action can be taken. Among these are: (1) The Federal Reserve and certain other government agencies may in effect guarantee the safety of loans, thereby reducing the risks of lending and tending to lower interest rates, and (2) the Treasury may act as borrower and itself spend additional funds. These actions will be discussed in more detail at a later point.

Now that we have examined most of the instruments of credit control, we can study the purposes or objectives that the Federal Reserve System has attempted to achieve through its credit control powers. Because they differ so much, we shall discuss separately the System's peacetime and wartime objectives.¹

PEACETIME OBJECTIVES OF FEDERAL RESERVE CREDIT POLICIES

It seems clear that the founders of the Federal Reserve System did not contemplate any basic change in the existing monetary and banking system; their objective was merely to alleviate a few of the shortcomings of that system. To establish more effective supervision of the banks in this country, to integrate more closely the functioning of state and national banks, to prevent bank panics by supplying a more elastic type of currency and making available to banks a source of additional reserve funds in times of stringency, to decrease the number of bank closings, to prevent "speculative excesses," and to ameliorate the fluctuations of interest rates—these were the types of results expected from the new Federal Reserve System. The Federal Reserve Act itself offered but little policy guidance, providing only that discount rates should be established ". . . with a view of accommodating commerce and business." As late as 1923 the Federal Reserve Board stated that Reserve bank open-market operations in

¹ For an interesting discussion of this subject, see Arthur Hersey, "Historical Review of Objectives of Federal Reserve Policy," *Federal Reserve Bulletin*, April, 1940.

securities should “. . . be governed with primary regard to the accommodation of commerce and business and to the effects of such purchases and sales on the general credit situation.”² Such vague pronouncements could offer little or no useful guidance to credit policy; they could only act as a substitute for clear thinking and prolong the earlier tendency of Federal Reserve officials to believe that they should function merely as passive lenders and assume no positive responsibility for the course of monetary and credit developments. As Dr. E. A. Goldenweiser testified:

. . . the idea that the Federal Reserve Board has broader responsibilities than the mere accommodation of commerce and business and the serving of agriculture, trade and industry, is an idea which has been forced upon the Federal Reserve System by actual experience and which has been gradually developed in the System.

The accommodation of commerce and business, which is the only objective that was mentioned in the Federal Reserve Act, is a vague phrase, and has all the attributes of a statesmanlike pronouncement. It is vague, it is a glittering generality like the Declaration of Independence, and its contents can be changed as circumstances change.³

In the following section we shall discuss more fully the implications of “accommodating commerce, industry and agriculture.” What we must emphasize here is that in the beginning both Congress and Federal Reserve officials were much influenced by the strong laissez-faire philosophy of the pre-1914 period, the functions of the Federal Reserve System were narrowly construed, and it was expected to be a largely passive rather than a strong controlling body. This attitude was abandoned only slowly, and probably tardily, as the System faced a variety of disquieting disturbances growing out of World War I, the depression following that war, world monetary disturbances and our own speculative mania during the 1920's, and the devastation wrought by the great depression after 1929. Only gradually did the Federal Reserve assume its present responsibilities as a powerful and active monetary authority.

² Federal Reserve Board, *Annual Report*, 1923, p. 116.

³ Hearings on H.R. 5357, 74th Congress, First Session, 1935, p. 434.

The Accommodation of Commerce, Industry, and Agriculture

Though the term "accommodation of business" is indeed a glittering generality without specific content, it was nevertheless used during the early years of the Reserve System to justify two courses of action—or inaction. In the first place, the Federal Reserve seems to have been much impressed by the commercial loan theory of commercial and central banking. Time and again officials of the System maintained that the quantity of money and bank credit would be properly and almost automatically adjusted to "the needs of trade" if commercial and central banks would make only "short-term, self-liquidating loans based on the legitimate short-term needs of agriculture, industry, and commerce." Proper control of the form and use of Federal Reserve and commercial bank credit—that is, control of the "quality" of credit—would make unnecessary any specific attention to the quantity of credit. This theory of central banking was propounded at length in the famous 1923 *Annual Report* of the Federal Reserve Board.

It is the belief of the Board that there will be little danger that the credit created and contributed by the Federal Reserve banks will be in excessive volume if restricted to productive uses.

A characteristic of the good functioning of the economic system is to be found in the smooth unobstructed movement of goods from the producer through the channels of distribution to their several ultimate uses. The characteristic of the good functioning of the credit system is to be found in the promptness and in the degree with which the flow of credit adapts itself to the orderly flow of goods in industry and trade. So long as this flow is not interrupted by speculative interference there is little likelihood of the abuse of credit supplied by the Federal Reserve banks and consequently little danger of the undue creation of new credit. The volume of credit will seldom be at variance with the volume of credit needs as they are reflected in the demands of productive industry as long as (1) the volume of trade, production, and employment and (2) the volume of consumption are in equilibrium. Credit for short-term operations in agriculture, industry, and trade, when these operations are genuinely productive and nonspeculative in character, that is to say, credit provided for the purpose of financing the movement of goods through any one of

the successive stages of production and distribution into consumption, is a productive use of credit. But when the effect of the credit used is to impede or delay the forward movement of goods from producer to consumer, unless such delay is made necessary by some unavoidable cause, e.g., the interruption of transportation facilities, credit is not productively used. The withholding of goods from sale when there is a market or the accumulation of goods for an anticipated rise of price is not a productive use. It is the unproductive use of credit that breeds unwarranted increase in the volume of credit; it also gives rise to unnecessary maladjustment between the volume of production and the volume of consumption, and is followed by price and other economic disturbances. Administratively, therefore, the solution of the economic problem of keeping the volume of credit issuing from the Federal Reserve banks from becoming either excessive or deficient is found in maintaining it in due relation to the volume of credit needs as these needs are derived from the operating requirements of agriculture, industry, and trade, and the prevention of the uses of Federal Reserve credit for purposes not warranted by the terms or spirit of the Federal Reserve Act.⁴

The implications of this theory of Federal Reserve credit policy are obvious: The System should try to assure that commercial banks extend only "short-term self-liquidating" credit based on "an orderly movement" of goods and services—refusing credit for the "speculative" purchase and holding of either commodities or securities—and Reserve banks likewise should lend only on short-term commercial paper of the "eligible" type. Having thus regulated the *quality* of credit, the Federal Reserve could then passively permit the *quantity* of credit to be adjusted automatically to "the legitimate needs of trade."

As was pointed out in a preceding chapter, the commercial loan theory of banking is clearly fallacious and, when used as a guide to credit policy, can lead central banks only into serious errors. Almost unlimited inflation or deflation can result, even though bank credit is extended solely on the basis of production and trade. Suppose, for example, that entrepreneurs decide to borrow larger amounts from banks to meet payrolls or purchase inventories; they can easily do this since

⁴ Federal Reserve Board, *Annual Report*, 1923, pp. 34-35.

ordinarily they have unused borrowing power. This original increase in the money supply would increase the spending power of the community and would tend to increase the value of business assets and business output. This induced rise in the value of their assets and output would increase the borrowing power of enterprisers, and it would be likely to induce a further increase in bank loans and checking deposits, a further increase in spending and prices, and so on. In short, each expansion of credit would provide the basis for a still further increase in credit, spending, and prices. On the other hand, an original decline of bank credit—by reducing the money supply, spending, and prices—could induce still further declines of borrowing, money, spending, and prices. Certainly no mere control of the types or “quality” of commercial bank and Reserve bank credit can assure proper behavior of the quantity of credit and money.

Closely related to this theory of “accommodating business” was the desire of Federal Reserve officials to stabilize interest rates. Commerce, industry, and agriculture should at all times be “accommodated” at “reasonable” rates of interest. One searches in vain, however, for a definition by Federal Reserve officials of these “reasonable” or “natural” levels of interest rates. We shall see later that interest rates must be kept at “appropriate” levels if savings are to be used actively for investment in new capital goods in such quantities as to provide high and stable levels of employment. Inappropriate interest rates can have highly unstabilizing effects on business and employment. But these “appropriate” rates are not, as the Federal Reserve seemed to believe in its early years, stable over a period of time. When investment spending tends to rise to excessive levels relative to savings, interest rates should be increased, sometimes markedly. And when borrowing to finance investment spending tends to be deficient relative to savings, interest rates should certainly be reduced, often drastically, to increase the amount of savings demanded for use. A policy of stabilizing interest rates through good times and bad can serve only to accentuate business fluctuations. Failure of these rates to drop markedly as the profitability of business declines must aggravate the fall of business

borrowing, spending for capital goods, employment, production, and prices. And failure of these rates to rise sufficiently during highly profitable boom periods must accentuate the rise of business borrowing, spending for capital goods, and prices. In an economy characterized by marked shifts in the profitability of business, interest rates should not be stabilized but should be deliberately varied in such a way as to make their maximum contributions to business stability.

As long as Federal Reserve officials continued to think in terms of "accommodating business" they tended to follow passive credit policies. But the sheer impact of events forced them to look at other objectives and after a time to assume the initiative and take more aggressive action.

The Maintenance of a Stable Ratio of Reserves to Liabilities at Reserve Banks

Some apparently believed that the new Reserve banks should follow a policy of lending and purchasing securities, thereby creating member bank reserves and issuing Federal Reserve notes up to the maximum amounts permitted by the legal reserves. This would have meant that total Reserve bank credit would have tended to increase and decrease proportionally with increases and decreases in our gold stock. There seem to have been two reasons for this belief: (1) The Reserve banks, like commercial banks, should try to maximize their profits, and they could do so only by lending up to the limit permitted by their reserves. (2) Such policies were in accord with "the rules of the gold standard game." These people believed that a gold inflow should cause the Reserve banks to expand their own credit, and that a gold outflow should lead to a tightening of Reserve bank credit.

In practice, the maintenance of a stable ratio of reserves to deposit and note liabilities has not been an important objective of Federal Reserve credit policy. The Reserve banks have usually kept their reserve ratio far above the minimum required by law and have not tried to stabilize it. On only three occasions—once in 1920, once in 1931, and once in 1933—did their reserves fall so close to the legal minimum that they felt

obliged to raise their discount rates and otherwise restrict credit in order to protect their reserve position. At all other times their credit policies have been aimed at other objectives. Upon the receipt of gold, the Reserve banks have sometimes kept the volume of their credit stable, at other times they have reduced their credit in the face of the gold inflow, and at still other times they have expanded their credit under these conditions. Their response to gold outflows has been at least as varied. In short, the Reserve banks have not ordinarily allowed their credit policies to be dictated by their reserve position. Neither have they attempted to maximize their profits; in fact, they frequently take actions that will clearly reduce their profits.

The Restraint of Security Speculation

On several occasions Federal Reserve credit policies have been influenced by a desire to restrain speculation in securities, or at least restrict the use of credit for this purpose. This objective was one of the dominating determinants of credit policy in the period immediately preceding October, 1929, and it has been influential at other times, as in 1936-37 and during and immediately after World War II.

We are all painfully familiar with the mania for security speculation that culminated in the great crash of October, 1929. As measured by the Standard Statistics index, common-stock prices in September, 1929, had risen 70 per cent above the levels of late 1927, about 125 per cent above 1926 levels, and 225 per cent above 1923 levels. Unprecedented numbers of Americans fought to share in the huge speculative profits of the new era, some of them borrowing large amounts of money to finance their stock purchases. In October, 1929, stockbrokers borrowed more than \$9 billion for their own accounts and for their customers, and it has been estimated that other loans on securities amounted to at least \$7500 million. Thus, total loans on security collateral that month amounted to at least \$16,500 million. It is true, of course, that the volume of loans on security collateral is not an accurate measure of the amount of borrowed funds that is being used

for security speculation; some of the proceeds of such loans can be used to finance commodity production and trade, and some of the proceeds from loans on commercial paper can be used for security speculation. Yet it was clear to everyone that great quantities of credit were being used to finance speculative security purchases. A large part of these loans were made by commercial banks; another large amount was lent for speculative purposes by non-banking corporations, individuals, and foreign sources. At least \$3600 million of outstanding loans to brokers in October, 1929, came from these non-bank sources.

Though insisting that it "neither assumes the right nor has it any disposition to set itself up as an arbiter of security speculation or values," the Federal Reserve Board was strongly opposed to the excessive use of credit for security speculation.⁵ There were several reasons for this opposition. (1) It was feared that increases in loans for this purpose would induce an overexpansion of the total volume of bank credit and money, with general inflationary consequences. Those who believed in the commercial loan theory of banking thought that the extension of loans for speculative purposes was especially likely to bring about general overexpansion. (2) It was feared that the greatly increased use of loan funds for speculative purposes would absorb funds from the market and increase the general level of interest rates, to the detriment of business and of financial conditions at home and abroad. The Federal Reserve, seeing no signs of overexpansion of production, trade, or prices in our commodity markets, wished to maintain low interest rates for "legitimate" purposes in order to maintain a high level of economic activity. Moreover, it did not want to see interest rates here rise to such high levels as to attract large amounts of foreign funds, thereby endangering the ability of foreign countries to retain their gold stocks and to continue to prosper. (3) It was feared that the collapse of security prices following an excessive rise would endanger prosperity by generating a generally pessimistic outlook and making it difficult for business enterprises to sell new securities.

⁵ *Ibid.*, 1929, p. 2.

But how was the Federal Reserve to restrain the use of credit for security speculation? This became a subject of bitter controversy between the Federal Reserve Board and the officers of several Reserve banks. Two general methods presented themselves: (1) a general tightening of credit conditions which would affect speculative borrowers as well as others, and (2) selective controls which would attempt to reduce the availability of credit for security speculation without restricting it for "legitimate" purposes. Each had its shortcomings. A general restriction of credit and a rise in interest rates would hit "legitimate" borrowers as well as speculators, and many believed that production and trade would be more sensitive to increased interest rates than would speculative borrowing. On the other hand, selective controls were largely untried and their effectiveness was doubtful. Under existing legislation the power of the Federal Reserve to exercise such selective control was largely limited to moral suasion. It could only issue general warnings, plead with banks to limit speculative loans, warn individual banks not to abuse their borrowing privileges by using Reserve bank funds to make security loans, and in extreme cases refuse to lend to a bank or force it to repay its borrowings. Such measures were clumsy and of little use in dealing with the banks that were largely out of debt to the Federal Reserve and yet were lending heavily for speculative purposes.

Both general and selective restrictive actions were taken. Between November, 1927, and the autumn of 1929 the Reserve banks sold more than \$400 million of government securities in the open market, raised their bill buying rate from $4\frac{1}{2}$ to $5\frac{1}{8}$ per cent, and increased their discount rates by varying amounts, the New York Reserve bank rate being raised in a series of steps from $3\frac{1}{2}$ to 6 per cent. These general restrictive actions were supplemented sporadically, mostly in the early part of 1929, by moral suasion aimed at curtailing security loans while maintaining ample credit for legitimate purposes. In public speeches, circular letters, interviews, and otherwise, banks were told that:

1. Funds were being "absorbed" in security loans, to the detriment of legitimate business.

2. The Federal Reserve Act did not contemplate the use of Reserve bank credit for the creation or extension of speculative credit, and a member bank could not reasonably claim the right to borrow for the purpose of making or maintaining security loans.
3. The Federal Reserve Board had authority to interfere with the loan practices of member banks which were maintaining speculative security loans with the aid of Reserve bank credit.
4. The cooperation of member banks in limiting security loans was necessary.⁶

Though Federal Reserve actions of this period did tighten credit, it seems unlikely that they either reduced significantly the speculative use of credit or directly hastened the collapse of security prices. In fact, some believe, perhaps wrongly, that the Federal Reserve tended only to hasten the decline of "legitimate" business both here and abroad. It was largely because of the impotency of the Federal Reserve in this period, coupled with the subsequent revulsion against the evils of speculation, that legislation was enacted in 1933-35 increasing the selective controls available to the Federal Reserve. The new legislation gave it much greater power to regulate the use of credit for security speculation. (1) Member banks are forbidden to act as agents of corporations and individuals in making loans on securities. The purpose of this prohibition is to prevent inflows of loan funds from these non-bank sources from defeating Federal Reserve attempts to restrict speculative credit. (2) The Board of Governors is empowered to fix "margin requirements" on security loans, that is, to determine the percentage of the purchase price of a security that must be supplied by the borrower himself. By altering the height of margin requirements, the Board can to some extent regulate the demand for loans on securities. For example, by increasing these requirements, which is the same thing as decreasing the ratio of loans to the market value of securities, the Board can decrease the demand for loans of this type. In the extreme case in which margin requirements are raised to 100 per cent, no loan can be made on security

⁶ *Ibid.*, 1929, p. 3.

collateral. This power is proving useful in limiting the speculative demand for credit. (3) The Board may also direct any member bank to refrain from increasing its loans on security collateral for any period up to a year. It is hoped that these new selective controls will enable the Federal Reserve to prevent the excessive use of credit for security speculation without necessitating a general restriction of credit.

The Stabilization of Business Activity

Federal Reserve officials have insisted that stabilization of business activity has always been one of the primary objectives of their credit policies. Typical of these statements is one made by a spokesman for the Federal Reserve Bank of New York in 1931:

The economic life of the country moves in a constantly changing current from depression to prosperity and back again. Broadly speaking, it has been the policy of this bank to exercise its influence toward restraint at times when business and speculative activity appeared to be excessive, and to remove credit restraints at times of business depression in the hope that this policy might aid in avoiding the extremes of business expansion and contraction and encourage greater business stability. . . .⁷

Federal Reserve officials and W. R. Burgess have prepared charts showing that the restrictive and liberalizing policies of the Federal Reserve have actually been timed in such a way as to tighten credit when business activity was rising rapidly and to ease it when business was declining.

Though it is undoubtedly true that stabilization of business activity has been one of the important objectives of the System's credit policy, we must not assume that it has long been the dominating purpose. In the first place, it has had to compete with many other objectives. This was especially true in the earlier period. And in the second place, it was only after 1931 that the Federal Reserve was willing to take really aggressive action to bring about business recovery. Inclined to be passive before that time, it was disposed to do no more

⁷ Appendix to Hearings on S. Res. 71, 1931, p. 761.

than "remove credit restraints at times of business depression in the hope that this policy might aid in avoiding the extremes of . . . business contraction." In 1935 Governor Eccles of the Board proposed the following congressional mandate to the Federal Reserve: "It shall be the duty of the Federal Reserve Board to exercise such powers as it possesses to promote con-

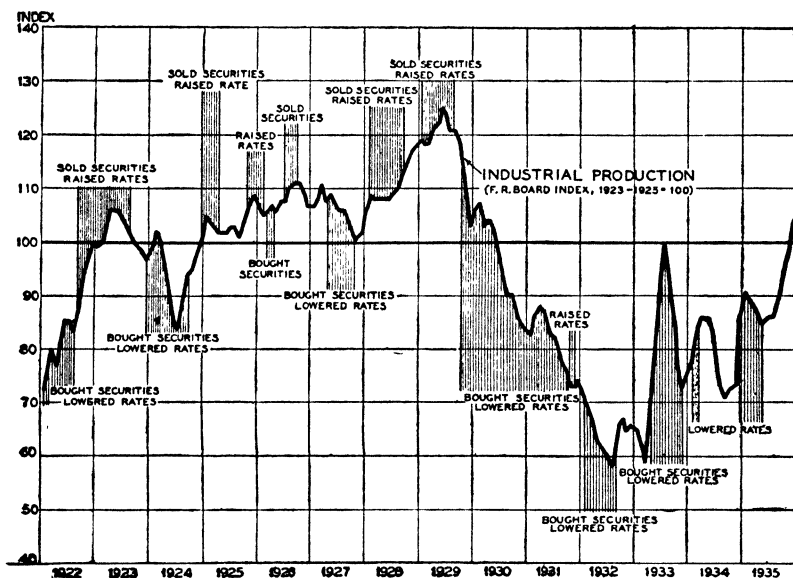


FIG. 11. *Timing of Federal Reserve Open-Market Operations and Discount Rate Changes Compared with Changes in the Volume of Industrial Production.*⁸

ditions making for business stability and to mitigate by its influence unstabilizing fluctuations in the general level of production, trade, prices, and employment, so far as may be possible within the scope of monetary action."⁹ Prior to about 1932 most Federal Reserve officials would have been strongly opposed to any mandate imposing such a clear responsibility on the System and requiring such positive and aggressive action from it. It seems likely that stabilization of business

⁸ Reproduced from W. R. Burgess, *Reserve Banks and the Money Market*, copyright, 1927, 1936, 1946, by Harper & Brothers.

⁹ Hearings on H.R. 5357, p. 251.

activity will be the most important peacetime objective of the Federal Reserve during the coming years. Its aggressive anti-depression policy from 1933 to 1940 and the spirit expressed in the Full Employment Act of 1946 both suggest that in the future the Federal Reserve will not be able to maintain passive policies in the face of widespread unemployment. But that it will act promptly to stop an overexpansion of credit and spending seems less certain.

Price Stabilization

It has been proposed on several occasions that Congress should order the Federal Reserve to use its powers to maintain stable commodity price levels. Officials of the System have opposed every one of these proposals, though they have emphasized the desirability of maintaining relatively stable prices and have insisted that their policies do in fact tend toward doing so. They have given several reasons for their opposition to the proposed legislation. (1) There are technical defects in the proposals. Board members have criticized the ambiguity of proposals to stabilize "the general level of prices," pointing out the diverse behavior of the different types of price indexes. One member, Mr. Hamblin, emphasized this point in 1928: "For example, in the period from 1925 to 1927 the Bureau of Labor wholesale indexes show a price decline of about 12 per cent; but if you take the curve of the cost of living, the decline was barely 2 per cent. If you take a composite index like Mr. Snyder's, there was hardly any decline at all."¹⁰ The Board would still have opposed the legislation, however, even if it had specified the particular index to be stabilized. (2) Not all price declines are undesirable. Though admitting that such declines are usually harmful, the Board has insisted that those arising from general increases in efficiency are actually beneficial. If the decline of prices is accompanied by at least proportional declines in costs, no decrease in the profitability of production and employment need occur. (3) Price changes are but tardy indicators of more basic difficulties. Federal Reserve officials

¹⁰ Hearings on H.R. 11806, 1928, p. 393.

have contended that changes in price levels are poor guides for a credit policy because they tend to appear only after basic maladjustments have been under way for some time.

“Credit administration must be cognizant of what is under way or in process in the movement of business before it is registered in the price index. The price index records an accomplished fact.”¹¹

For these reasons the Federal Reserve has continued to oppose all proposals that would make price stabilization the sole, or even the dominant, objective of peacetime credit policies. But it still insists that a high degree of price stability would follow from a successful policy of business stabilization.

Restoration and Maintenance of the Gold Standard Abroad

During much of the period since the end of World War I, the Federal Reserve System has had to consider not only the domestic but also the international effects of its policies. This country emerged from that war as the strongest monetary power in the world. Our gold holdings far exceeded those of any other country, and we tended constantly to add to our gold stocks at the expense of other countries. They, on the other hand, found it difficult to reestablish and maintain gold standards without our cooperation. Prior to World War II our cooperation with other nations on monetary matters was far from complete. Instead of taking the lead in setting up a formal international body to facilitate cooperation, we refused to become a member of the one available organization for this purpose—the Bank for International Settlements—and the Federal Reserve often followed policies that were vigorously opposed by the officials of foreign central banks. Nevertheless, Federal Reserve credit policies have frequently been influenced by the System’s desire to aid other countries in the restoration or continuance of gold standards and the maintenance of relatively easy credit conditions abroad. This aid has taken two general forms: (1) the maintenance of easy

¹¹ Federal Reserve Board, *Annual Report*, 1923, p. 32.

credit conditions and low interest rates in this country, and (2) loans or commitments to lend to foreign central banks or governments.

The maintenance of easy credit here tends to help foreign countries acquire and retain gold and to maintain easy credit conditions in their money markets both by increasing our purchases of goods and services from them and by keeping investment funds in their markets. As we have already seen, easy credit conditions here tend to expand our money supply, our spendings for goods and services, and our national money income. With a high national income, we tend to buy more goods and services abroad. This tendency is accentuated to the extent that our prices rise. With a higher level of employment and income, we increase our purchases of goods and services from other countries, thereby giving them more funds with which to acquire and retain gold.

A liberal credit policy here also helps other countries retain gold and maintain easy credit conditions in their money markets by inducing a flow of credit to those countries, or at least by discouraging credit from flowing out of them. This is true of both short-term and long-term loan funds. During almost the entire period between the two World Wars, there was a large volume of short-term funds capable of moving from one international financial center to another, depending on credit conditions in the various centers. By lowering interest rates in New York we could induce an outflow of funds from this country to such centers as London, Paris, or Berlin, or at least discourage a flow of funds from those centers to New York. Moreover, easy credit here encouraged Americans to make long-term loans abroad, and the ability of many countries to retain gold without tightening credit depended on the continued outflow of loan funds from this country. The abrupt termination of our foreign lending in 1929 was one of the principal factors leading to the breakdown of gold standards abroad.

In 1924 and 1927 the Federal Reserve deliberately adopted more liberal credit policies, purchasing securities in the open market and reducing discount rates, to help other countries restore and maintain gold standards. An unwillingness to

intensify the monetary difficulties of other nations was one, but only one, of the reasons why the Federal Reserve did not adopt even more restrictive credit policies in 1928-29.

The Reserve banks have also assisted other countries in reestablishing or maintaining gold standards by extending credits to their central banks or governments. A partial list of these credits is given in Table 28. This table shows that

TABLE 28. CREDITS EXTENDED TO FOREIGN CENTRAL BANKS BY
FEDERAL RESERVE BANKS¹²

Date	Bank Receiving Credit	Amount
1925	Bank of England	\$200,000,000
1925	Banking Office of the Ministry of Finance of Czechoslovakia	(approx.) 5,000,000
1925	Bank of Poland	10,000,000
1925	National Bank of Belgium	10,000,000
1927	Bank of Poland	5,250,000
1927	Bank of Italy	15,000,000
1929	Bank of Roumania	4,500,000
1929	National Bank of Hungary	2,000,000
1931	National Bank of Austria	1,083,000
1931	National Bank of Hungary	5,000,000
1931	German Reichsbank	25,000,000
1931	Bank of England	125,000,000

prior to 1932 the Reserve banks entered into twelve formal agreements to extend credits to the central banks of nine different countries. In some cases the Reserve banks alone extended aid; in others they acted in collaboration with other central banks. Even when these credit agreements were not utilized they often proved helpful, because they served to establish confidence in the currency affected and to halt credit withdrawals from the threatened country.

Though these various Federal Reserve actions were unquestionably of assistance to other countries, they were too sporadic to take the place of thoroughgoing international cooperation. With the establishment of the International Monetary Fund and the International Bank for Reconstruction and Development we now have a more adequate mecha-

¹² For a comprehensive study of these credits, see A. Goldstein, "Federal Reserve Aid to Foreign Central Banks," *Review of Economic Studies*, February, 1935, pp. 79-98.

nism for cooperation. Whether we also have the necessary good will and wisdom remains to be seen.

WARTIME OBJECTIVES OF FEDERAL RESERVE CREDIT POLICIES

During major wars the dominant objective of central bank policies is to create, or provide the basis for the creation of, new money with which to meet the government expenditures that are not met by taxes or by borrowings from non-bank sources. That central banks become the engines of inflation is the sad conclusion to which one is forced by the financial histories of modern wars. It has certainly been true of the Federal Reserve during both World Wars.

World War I

Though small in comparison with World War II, our government expenditures during World War I were far higher than they had ever been during any earlier peace or war period. In the two years between July 1, 1917, and June 30, 1919, the federal government spent \$31,341,000,000. Only 27 per cent of this expenditure was covered by taxes, the remaining 73 per cent, or \$22,506,000,000, being met by borrowing. The federal debt was raised from about \$1 billion at the beginning of 1917 to nearly \$26 billion at the end of 1919. Some of the new bonds representing this debt increase—in fact, large amounts of them—were sold to individuals and business concerns who purchased them out of their current incomes. To the extent that the bonds were paid for in this way government borrowing was not necessarily inflationary; the increased spending power of the government was offset by the decreased spending power of the individuals and non-banking business concerns who exchanged their money for bonds. When receipts from these security sales proved far too small to meet the government's needs, it resorted to an inflationary expansion of bank credit to make up the difference. In effect, the commercial banks created new deposits for the Treasury, which

then used them to pay the government's expenses. These new deposits were created in two principal ways. In the first place, the commercial banks themselves purchased large amounts of government bonds, paying for them with newly created deposit credits. It is estimated that these banks added nearly \$4500 million to their holdings of government securities during the three years preceding July, 1919. In the second place, banks created a large volume of new deposits by making loans to individuals and corporations who in turn used them to buy government securities. With the full encouragement of the Federal Reserve and the Treasury, individuals and corporations subscribed to government bonds and immediately borrowed enough money from the banks to pay for them. The results were almost as inflationary as they would have been had the banks lent directly to the Treasury. The total money supply, including both checking deposits and circulating coin and currency, rose about \$10 billion, or more than 70 per cent, in the three years following our entrance into the war in April, 1917.

The prime objective of Federal Reserve credit policies from early 1917 until about the end of 1919 was to facilitate Treasury finance. In addition to acting as a nation-wide bond-selling organization and otherwise serving as fiscal agent for the Treasury, the Federal Reserve supplied the banks with large amounts of reserves so that the Treasury would be able to borrow all the money it needed at low rates of interest. Total Reserve bank credit outstanding rose from less than \$500 million in the middle of 1917 to more than \$3500 million at the end of 1919. Most of this was in the form of loans to member banks. The Federal Reserve used almost every propaganda device at its disposal to encourage banks to buy government securities or lend to anyone willing to borrow in order to buy these securities. Moreover, it assured them that the Reserve banks were willing and even eager to lend reserve funds for this purpose at rates of interest no higher than those borne by the securities or by the bank loans on these securities as collateral. The Reserve banks themselves both supplied funds to the Treasury and added to member bank reserves by purchasing more than \$200 million of Treasury obligations.

Thus, World War I marked a great change in our methods of inflationary war finance. Inflation was accomplished during the Revolutionary War by the issue of government paper money in the form of continental currency. The Civil War inflation was financed by issues of paper money in the form of greenbacks and national bank notes, and to a lesser extent by the creation of additional checking deposits. The inflation of World War I was bank-financed; no increase of government-created paper money occurred. The Reserve banks created additional Federal Reserve notes to meet the increased demand for currency and lent additional reserves to commercial banks, which in turn used the increased reserves as a basis for creating billions of dollars' worth of new checking deposits.

World War II

Total war is expensive. This fact is emphasized by the tremendous volume of spendings by our government during World War II. In the five years from July 1, 1941, to June 30, 1946, total expenditures by the federal government amounted to about \$370 billion. Receipts from taxes were also tremendous, but they amounted to only around \$170 billion leaving about \$200 billion to be raised by borrowing. Special efforts were made, with a considerable degree of success, to sell government securities to individuals and non-banking corporations who would pay for them out of current income, thereby lessening the inflationary pressure. Receipts from this source were again inadequate, however, and the Treasury again resorted to inflationary financing through the banking system. Both the Federal Reserve and the commercial banking system cooperated in creating new money for the Treasury.

The Federal Reserve played an even more active part in creating new money for war purposes than it did during World War I. We have already seen that in the earlier war the Reserve banks rendered help largely by lending member banks large amounts at low rates of interest to supply additional coin and currency for circulation and expand bank reserves.

In World War II the Reserve banks expanded their outstanding credit by more than \$21 billion, mostly by purchasing government securities directly from the Treasury and in the open market. In at least two ways their purchases of government securities facilitated Treasury financing at low rates of interest. (1) The Reserve banks themselves purchased and held out of the market more than \$23 billion of the government debt. And (2) with each purchase of securities these banks created additional funds which the commercial banks could add to their reserves or use to meet demands for coin or currency for circulation. Without these large purchases of securities by the Reserve banks it seems almost certain that the Treasury would not have been able to borrow such huge amounts at such low rates of interest. To assure that interest rates would remain low, the Reserve banks stood ready after early 1942 to purchase at $\frac{3}{8}$ of 1 per cent discount all 90-day Treasury bills offered to them.

Having voluminous excess reserves at the beginning of the war, and being constantly supplied with additional funds by the Reserve banks, the commercial banks created large amounts of new money. The commercial banks themselves purchased an additional \$64 billion of government securities between July 1, 1941, and June 30, 1946, and expanded their other types of credit to some extent. Largely because of these money-creating activities of the Reserve banks and the commercial banks, our total money supply (checking deposits and currency outside banks) rose from about \$45 billion in June, 1941, to around \$106 billion in June, 1946. The inflationary pressure accompanying this monetary expansion is well known. It is true, of course, that some such pressure would unquestionably have developed even if the Treasury had relied more on taxation and on types of borrowing that did not entail the creation of new money.

Almost all economists agree that war finance should not rely so heavily on the creation of new money, whether this is accomplished by a government's issue of paper money or by the more sophisticated method of expanding central bank and commercial bank credit. They do not like the resulting inflation and all the economic disturbances and inequitable

shifts of wealth and income that accompany it. Certainly a Federal Reserve credit policy that supplies banks with liberal quantities of excess reserves and maintains low market rates of interest while inflationary price rises are occurring is directly contrary to the objectives professed by Federal Reserve officials before the outbreak of World War II. Yet this is exactly what the Reserve banks were still doing more than a year after the Japanese surrender, and they were doing this to enable the Treasury to continue borrowing at low rates of interest. Many economists believed that the Treasury should hasten to balance its budget either by increasing its revenues or by reducing its expenditures, and that both it and the Federal Reserve should follow policies designed to curb the inflation.

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Some Commercial Banking Problems in the United States

OUR EARLIER DISCUSSIONS OF COMMERCIAL BANKS DEALT primarily with the general functions of these institutions. The purpose of this chapter is to investigate some of the principal problems of commercial banking in this country. More specifically, we shall study problems related to the structure of our commercial banking system, bank failures, deposit insurance, and bank supervision.

THE STRUCTURE OF COMMERCIAL BANKING IN THE UNITED STATES

One of the most striking characteristics of our commercial banking system is the large number of banks that it contains. At the end of 1946 we had 14,044 commercial banking corporations operating a total of 18,025 banking offices. In contrast, Canada had only 10 chartered banks which served its large territory through about 3300 branches. England had only 13 joint-stock (incorporated) banks, and five of these—usually called “The Big Five”—held over 90 per cent of the total assets of the system and operated about 8000 branches. Thus, both Canada and England had only a few commercial bank corporations, each operating a large number of branch offices over a wide area. In our system, on the other hand,

single-office bank corporations predominated; only about 1100 of our commercial bank corporations operated more than one banking office. Our system was far from homogeneous, however. It contained (1) independent unit banks, (2) branch banks, (3) group banks, and (4) chain banks.

By an "independent unit bank" we mean a single bank corporation which operates a single banking office and is not controlled by another bank or by any person, group, or corporation that controls other banks, and which does not itself control other banks. In short, the banking corporation operates but one office and is not related to other banks through either ownership or control. Most of our commercial banks are of this type. By a "branch bank" we mean a single bank corporation that directly owns and operates two or more banking offices; multiple banking offices are operated directly by a single corporation with only one group of owners and one board of directors. Some branch banks are relatively small, with only two or three banking offices located in a small area. At the other extreme are large branch banks with more than a hundred branches spread over an entire state. By "group banking" we mean the arrangement whereby two or more separately incorporated banks are brought under the control of a "holding company." For example, Banks A, B, C, and D, each with its separate charter, are brought under the control of Holding Company H, which owns at least enough of their stock to control them.¹ In some cases the holding company is itself a bank; in others it does not engage directly in banking. The banks that are controlled by the holding company may each operate only a single office, or they may themselves be branch banks. Some banking groups include only three or four banks; others, more than fifty banks each. By "chain banking" we mean any arrangement by which two or more separately incorporated banks are brought under common control by the use of some device other than a holding company. Thus, two or more banks may be owned by the same individual or group of individuals or they may have interlocking directorates. In general, chain

¹ The holding company is usually a corporation, but it sometimes takes other legal forms, such as a business trust.

banking systems are built around a key bank that is considerably larger than the other banks in the chain. In 55 of the 96 chain banking systems in this country at the end of 1939, the key bank had more deposits than all the other banks in the chain. Though branch banking differs markedly in form, and to some extent in functioning, from group and chain banking, it should be clear that these three systems have much in common. They are all methods of establishing "multiple-office banking," in which a number of banking offices are brought under common control.

These, then, are the forms of bank organization which fight, often bitterly, to maintain and improve their position in the commercial banking system. And since the form of bank organization is subject to government regulation, Congress and the state legislatures often become the arenas in which the fights occur. To bring out the principal issues involved, let us look closely at the controversy between branch banking and independent unit banking.

Branch Banking vs. Independent Unit Banking

Within the banking fraternity itself there is a sharp cleavage of opinion on the question of branch banking. In general, large banks in the principal cities would like freedom to establish branches in the outlying sections of their own cities and in other towns and cities. The smaller banks, especially those outside the principal cities, fear and oppose the establishment of branches that will compete with them. Their attitude toward branch banking is comparable to that of independent grocers toward the great food chains. In fact, many of the arguments employed in this controversy are closely related to those used to attack or support "bigness" or "smallness" of business firms in general.

The advocates of independent unit banks stress both the advantages of this type of bank and the shortcomings, real or only alleged, of branch banking. Some of their principal arguments are as follows:

1. The single-office independent unit bank is likely to have more flexible management. The bank's officials, reared in

the community and thoroughly familiar with the credit-worthiness of its customers, can make decisions on loans and other matters much more quickly than can a branch manager who must await the rulings of a distant main office.

2. A locally owned and locally controlled bank will be much more interested in local economic development than will the local office of a widespread branch banking system. Moreover, bright and enterprising young men who do not have much collateral are more likely to be accommodated by a locally controlled bank than by a bank branch. Advocates of independent unit banks often contrast the allegedly sympathetic and understanding local banker with the coldly impersonal manager of a branch office.
3. Branch banking is likely to be monopolistic. Even if a town or city had branches of more than one bank, the big systems would, it is alleged, enter into either explicit or implicit agreements as to service charges, interest rates, and so on.
4. Branch banking is likely to drain loan funds away from small towns and small firms and lend them in larger cities and to large firms.
5. Giant branch banking systems concentrate too much economic power in financial institutions. Fear of domination by "Wall Street" is widespread.

The advocates of branch banking deny the validity of most of the above assertions and emphasize both the shortcomings of independent unit banks and the advantages of branch banking. Their arguments usually run somewhat as follows:

1. Independent unit banks are often too small to achieve either economy or efficient operation. A small bank with only a few hundred thousand dollars' worth of earning assets and a few thousand dollars of gross income each year can hardly support the usual pretentious bank building and hire all the capable and well-trained experts that are needed for efficient banking. A large branch banking system, on the other hand, need not rely on impressive buildings to create a feeling of public confidence; it can centralize many of its operations, such as the analysis and

purchase of securities; it can purchase supplies in quantity rather than small lots; it can attract and train capable personnel; and it can avoid the favoritism and nepotism that have plagued banking for so long.

2. Independent unit banks are often too small to accommodate the larger local business enterprises. Because of both prudence and legal restraints, an independent unit bank with its limited lending power may be unable to lend a firm as much as it needs. A branch of a large and widespread branch banking system is not restricted in this way, for it can draw on the resources of the entire system.
3. Independent unit banks often suffer from inadequate diversification of their assets. If such a bank lends large amounts to specialized local enterprises, its success may be largely dependent upon the prosperity of a specialized type of farming, mining, or industry. A widespread branch banking system, on the other hand, can lend liberally in each of the areas in which it has a branch and still achieve wide diversification of its assets, both geographically and by types of enterprise.
4. Independent unit banks are unable to achieve a high geographic mobility of credit. The concentration of lending power in the larger cities, especially in the large eastern cities, is well known. Under a system of independent unit banks there is no easy and reliable mechanism for siphoning these funds into sections where credit is scarcer and interest rates higher. Small firms that are not known widely enough to be able to sell their obligations in the great financial centers are placed at a special disadvantage. Advocates of branch banking say that this system would provide an easy way of shifting loan funds around the country. The pipe lines that would be constructed between the large and small places would be used not to drain funds from the small places but to pump funds to them and to lower interest rates there.
5. Branch banks would be just as interested in local developments as would independent unit banks, for they too would want to prosper.
6. Branch banks are much less prone to fail than are inde-

pendent unit banks. Certainly American banks have had a high failure rate as compared with the banks of other countries. To some extent, no doubt, this is because of the greater fluctuations of economic activity here. But it does seem likely that branch banking would be less unsafe here because of its better management, its more economical operations, its wider diversification of assets, and the ability of each branch to secure the help of the others in the system in time of need.

7. Branch banks would be no more likely to act monopolistically than are independent unit banks, which often have a local monopoly or enter into monopolistic agreements through their clearinghouse associations.

The controversy over the relative merits of independent unit banking and branch banking still continues, with the legal status of branch banking in a state of flux but tending to improve somewhat. State laws on the subject are highly diverse. Some states—about 13—either expressly prohibit branch banking or have no permissive legislation. At the other extreme, a few permit state-wide branch banking with only few limitations. Others permit state-wide branches but investigate a place's "need" for additional banking facilities before authorizing a branch there. Still other states permit branches, but only within the main-office city, the main-office county, or some other area smaller than the state.²

Federal legislation relative to branch banking has varied widely. The First and Second Banks of the United States, as we have seen, were widespread branch banking systems. The National Bank Act of 1864 contained no specific mention of branch banking and this was construed to prohibit it, though under an amendment in 1865 a state bank converting into a national bank was permitted to retain its existing branches. For more than 50 years after 1865 the only branches operated by national banks were those possessed by state banks at the time they became national banks. Since the passage of the Federal Reserve Act in 1913, federal legislation

² For a good discussion of this whole subject, see C. E. Cagle, "Branch, Chain, and Group Banking," in Board of Governors of the Federal Reserve System, *Banking Studies*, Washington, 1941, pp. 113-140.

relative to branch banking has been liberalized in several respects. The principal provisions of federal laws relating to the establishment of branches are now as follows:

1. Both national banks and state banks that are members of the Federal Reserve System may establish branches in their main-office cities if the laws of the state in which they are located *specifically authorize* state banks to establish such branches.
2. Both national banks and state banks that are members of the Federal Reserve may establish branches outside their main-office cities—but in no case beyond the borders of the state in which they are located—if, in the words of the federal statute, “such establishment and operation are at the time authorized to State banks by the statute law of the State in question by language specifically granting such authority affirmatively and not merely by implication or recognition, and subject to the restrictions as to location imposed by the law of the State on State banks.” No member of the Federal Reserve, whether it is a national or a state bank, may establish such branches unless it meets the minimum capital requirements laid down by federal law; these are more onerous than most of the state laws.
3. A national bank may neither establish nor move a branch without the consent of the Comptroller of the Currency, and state member banks may move or establish branches only with the consent of the Board of Governors of the Federal Reserve System.
4. State banks that are insured by the Federal Deposit Insurance Corporation but are not members of the Federal Reserve may establish a new branch or move an old one only with the approval of the FDIC.

Our description of the legal status of branch banking in this country has brought out not only the confused state of this legislation but also the following facts: (1) Federal legislation is never more liberal than state legislation applicable to the same area, and it is sometimes more restrictive; and (2) there is some doubt as to the wisdom of allowing individual states to formulate national policy on a subject that has such important nation-wide implications. Despite legal restrictions

branch banking has expanded markedly during the last fifty years, as is shown by Table 29.

At the end of 1939 branches of banks made up about 20 per cent of all commercial banking offices in this country, and branch banking "systems" held nearly 50 per cent of all commercial bank deposits. Though these figures are impressive, it is important to remember that very few of our branch banking systems are at all comparable to those of Canada and England, which cover a wide area and have a large number of

TABLE 29. BRANCH BANKING IN THE UNITED STATES ON SELECTED DATES³

Year	Number of Banks Operating Branches	Total Number of Branches Operated	Location of Branches	
			In Main- Office City	Outside Main- Office City
1900	87	119	25	94
1920	530	1281	773	508
1930	751	3522	2391	1131
1940	954	3525	1602	1923

branches. None of our branch "systems" is more than state-wide in scope and most of them operate in a smaller area. Moreover, most of them have only a few branches. This is shown in Table 30, which shows the situation at the end of 1939, the last date for which a detailed analysis is available. At that time 60 per cent of the branch "systems" had only one branch, and more than 90 per cent of them had no more than seven branches. About 43 per cent of all branches were operated by these banks. Moreover, most of the branch "systems" covered only a small area. About 46 per cent of the branches were in the main-office city, another 22 per cent were in the main-office county, and another 13 per cent were in contiguous counties. Only 19 per cent were in non-contiguous counties, and none were outside the main-office state. It seems clear that branch banking cannot realize its full advantages unless permitted a wider scope of operations. This

³ Board of Governors of the Federal Reserve System, *Banking and Monetary Statistics*. Washington, 1943, p. 297.

TABLE 30. THE SIZE AND GEOGRAPHIC EXTENT OF BRANCH BANKING SYSTEMS IN THE UNITED STATES, DECEMBER 31, 1939⁴

Number of Branches Per Bank	Number of Banks in Group	Total Number of Branches of Banks in Group	Location of Branches	
			In Main- Office City	Outside Main- Office City
1	557	557	148	409
2	152	304	109	195
3	73	219	100	119
4	33	132	65	67
5	19	95	59	36
6	18	108	52	56
7	10	70	32	38
8	8	64	36	28
9	4	36	4	32
10	8	80	52	28
11	8	88	50	38
12	4	48	35	13
13	6	78	43	35
14	3	42	18	24
15	1	15	1	14
16-20	9	162	80	82
21-50	13	401	304	97
51-100	6	382	329	53
Over 100	2	610	106	504
Total	984	3491	1623	1868

SUMMARY OF LOCATION OF BRANCHES

	Number of Branches	Per Cent of Total Branches
In main-office city	1623	46
Outside main-office city		
In main-office county	759	22
In contiguous counties	462	13
In non-contiguous counties	647	19
	3491	100

is especially necessary if this system is to achieve proper diversification of assets and a desirable degree of geographic mobility of credit.

⁴ *Ibid.*, p. 306.

Group Banking

State and federal legislation relative to group banking is too diverse to be detailed here.⁵ In general, however, this type of banking is subject to fewer restrictions than is branch banking. Group banks that are members of the Federal Reserve System are regulated by the Board of Governors. The status of group banking in the United States is indicated in Table 31. Some of these systems include only a few banks and

TABLE 31. GROUP BANKING IN THE UNITED STATES, DECEMBER 31, 1939⁶

Number of Banks in Each Group	Number of Group Banking Systems	Number of Banks in Group Systems	Number of Branches Operated by Banks in Group Systems
5 or under	20	69	60
6-10	11	75	68
11-18	7	102	645
21	1	21	67
75	1	75	8
85	1	85	21
Total	41	427	869

cover only a small area; others include many banks located in from two to seven states.

A full analysis of group banking would force us to review the whole subject of holding company operations. Certainly we must have enough government regulation to save group banking from the evils that have too often plagued holding company structures. Experts are now fairly well agreed that properly regulated group banking can be employed to avoid many of the shortcomings of independent unit banking. Most of them believe, however, that group banking has virtually no advantage that branch banking does not have, and that it cannot realize all the advantages of the latter.

Chain Banking

Because it involves common control of two or more banks through such devices as interlocking directorates or common

⁵ For a good discussion of this subject, see *ibid.*, pp. 130-138, 433-435.

⁶ *Ibid.*, p. 434.

ownership by a person or group of persons, the exact extent of chain banking is difficult to determine. It is estimated, however, that its status at the end of 1939 was approximately as follows:⁷

Number of chains	96
Number of banks in chains	499
Number of branches operated by chain banks	75

Chain banking seems to have no net advantages over group banking and it is probably inferior to branch banking, at least in its ability to achieve diversification of assets and geographic credit mobility.

BANK FAILURES IN THE UNITED STATES

Another outstanding characteristic of American commercial banks is their high rate of failures. There is the doubtful distinction of having one of the highest failure rates, if not the highest, to be found in any important commercial banking system. Whereas in countries like Canada or England decades often elapse without a single bank failure, in this country hardly a year passed, prior to 1934, without several hundred failures. As shown in Table 32, we have suffered more than 17,500 bank failures since 1864; more than 14,000 of these occurred between 1921 and 1933. Losses to depositors in failed banks during the period 1921-33 are estimated at nearly \$2 billion, and stockholders of banks have also lost large amounts.

Why have commercial bank failures been so common in this country? To some extent a high failure rate might be expected because of the nature of commercial banking operations, which we discussed in an earlier chapter.⁸ Bank deposits and other similar liabilities are stated in fixed amounts of dollars and are normally equal to a high percentage of a bank's total assets; hence a relatively small percentage decline of asset values can wipe out all of the stockholders' equity and endanger the safety of depositors' claims. More-

⁷ *Ibid.*, p. 431.

⁸ See pp. 195-206

over, most of a bank's liabilities are payable on demand or on short notice, whereas a considerable part of its assets can be liquidated only over a longer period of time. But these points of vulnerability are common to the commercial banks of all countries; they are not peculiar to our own. We still must explain why the failure rate in this country is so much higher than that abroad. Such an explanation must include at least three factors: (1) the structure of our banking system, es-

TABLE 32. BANK SUSPENSIONS IN THE UNITED STATES⁹

Period	National Banks	State Banks	Total
1864-1896	328	1,234	1,562
1897-1920	256	1,177	1,433
1921-1929	766	4,645	5,411
1930-1933	1947	6,865	8,812
1934-1941	20	282	302
1942	0	9	9
1943	2	2	4
1944	0	1	1
1945	0	0	0
1946	0	0	0
Total	3319	14,215	17,534

pecially the prevalence of small independent unit banks; (2) the "overbanked" condition of some sections at the outbreak of World War I; and (3) the wide cyclical swings to which our economy is subject.

Whatever may be the relative merits of large independent unit banks and branch banking systems, it is clear that small independent unit banks are especially liable to failure. Their management is often not well trained, nepotism is far from unknown, a large percentage of their assets is likely to be loans to local agriculture, industry, or trade, and the safety of their loans is likely to depend on the prosperity of local

⁹ Sources: For the period 1864-96, Cyril B. Upham and Edwin Lamke, *Closed and Distressed Banks*, Brookings Institution, Washington, 1934, p. 245.

For 1897-1941, Board of Governors of the Federal Reserve System, *Banking and Monetary Statistics*, Washington, 1943, p. 283.

For the period since 1941, *Federal Reserve Bulletin*.

The figures are not strictly accurate or comparable for different periods, but they indicate the general situation faithfully enough for our present purposes.

specialized enterprises. Even in a city like Detroit, where a bank customarily lends to many types of local businesses, the ability of practically all borrowers to pay may depend on the demand for automobiles. The prosperity of an entire Kansas town and the solvency of its independent unit banks may depend on the wheat market. Thus, independent unit banks, especially small banks of this type, are likely to be weak in the face of unfavorable economic developments. Moreover, large proportion of our banks are small and are located in relatively small places. This was especially true at the end of World War I, after the great expansion in the number of

TABLE 33. NUMBER OF COMMERCIAL BANKS IN THE UNITED STATES ON SELECTED DATES¹⁰

Year	National Banks	State Banks	Total Commercial Banks
1880	2076	650	2,726
1900	3731	5,007	8,738
1914	7518	17,498	25,016
1920	8024	20,635	28,659
1934	5417	9,604	15,021
1940	5164	9,234	14,338

banks had left many areas "overbanked." Many places did not have an excessive amount of banking resources, but they had too many small banks to achieve economy, efficiency, or safety.

Table 33 shows that the number of commercial banks in this country rose from 2726 in 1880 to 28,659 in 1920 and that most of this increase was in the number of state banks. Moreover, there was a tremendous increase in the number of small banks. It was not unusual for a village with 2000 inhabitants to have three or more banks, and many small or medium-sized towns were similarly overbanked. The great surge of bank failures hit the smaller banks especially hard, as is shown by Table 34. More than half of all bank failures between 1921 and 1936 involved banks with total loans and investments of less than \$250,000, and more than 85 per cent of them were

¹⁰ Board of Governors of the Federal Reserve System, *Banking Studies*, Washington, 1941, p. 418.

of banks with total loans and investments of less than \$1 million. The total number of small banks was, of course, large, but their failure rate was far above that of the larger banks.

We have just seen that the structure of the American banking system makes it more vulnerable than the systems of most other countries. It may also be true that the strain on our system caused by business depressions has been greater than in most other countries. The continuing depression in agri-

TABLE 34. BANK SUSPENSIONS IN THE UNITED STATES BY SIZE OF BANK,
1921-1936¹¹
(All banks, other than private and mutual savings)

Size Group, Measured by Total Loans and Investments	Number of Active Banks, June 30, 1920	Total Suspensions in Group, 1921-36	Number of Suspensions in 1921-36 per 100 Active Banks in 1920	Percentage of Total Suspensions
Under \$150,000	6,548	5,287	80.7	36.9
\$150,000 to 249,000	5,114	2,666	52.1	18.6
250,000 to 499,000	6,977	2,966	42.5	20.7
500,000 to 999,000	4,991	1,787	35.8	12.5
\$1,000,000 to \$1,999,000	2,733	870	31.8	6.1
2,000,000 to 4,999,000	1,573	505	32.1	3.5
5,000,000 to 9,999,000	508	151	29.7	1.0
\$10,000,000 to \$49,999,000	369	92	24.9	0.6
50,000,000 and over	72	9	12.5	0.1
Total	28,885	14,333		100.0

culture between the two wars was highly deleterious to banks in the farming areas, though the pressure was probably no greater than in other agricultural countries. The great depression following 1929, however, was worse here than in most other countries and was a potent force in bank failures. Bank failures and business depressions are mutually aggravating; a depression tends to break banks, and bank failures deepen a depression.

Why are bank failures considered so much worse than failures of other business firms? There are several reasons. (1)

¹¹ Source: *Federal Reserve Bulletin*, September, 1937, pp. 891, 895, 896. The table does not include 196 suspended banks whose size was not known.

Depositors, many of whom are in the economic classes that can ill afford to lose their money, are injured. (2) Large volumes of deposits are frozen in failed banks and hence are unavailable for purchasing the output of industry and agriculture. This is especially serious in times of general depression. (3) The failure of one bank often leads to widespread bank failures as depositors become frightened. (4) A surge of bank failures often gives rise to widespread hoarding of coin and currency, which drains reserves from the banks and tends to tighten credit. (5) Anticipating cash withdrawals by depositors, banks may follow niggardly lending policies in their attempts to achieve liquidity, thereby discouraging production and employment. (6) Bank failures may damage business "confidence" and deepen business depressions. For all these reasons we cannot expect to have a satisfactory monetary policy in this country until we have greatly decreased the bank-failure rate or at least offset the effects of such failures.

What can be done to decrease this rate? We noted in an earlier chapter that one means is to prevent banks from making overly risky loans and investments and to force them to maintain "adequate" capital. It seems probable that little more can be done along these lines without making banks overly cautious in their lending and investing. Some people expected that the Federal Reserve System, with its ability to lend to banks, would halt failures, but it has proved incapable of solving the problem. The solution must come largely from other sources. One of these is a marked change in our banking structure. An extension of branch banking, especially into agricultural areas and small towns and cities, seems essential. Another is general economic stabilization. General business stability would go far toward protecting banks. Still another source is deposit insurance; this merits more detailed discussion.

DEPOSIT INSURANCE

The protection of bank creditors through insurance plans is not a new device. It was used in a few states before the

Civil War to protect the holders of bank notes, but it was not applied to bank deposits until after 1900. Beginning in 1907, a total of eight states—Oklahoma, Kansas, Nebraska, Texas, Mississippi, South Dakota, North Dakota, and Washington—instituted deposit insurance plans for the state banks under their jurisdiction. Every one of these plans failed, and it came to be widely believed that “history shows the inevitable failure of deposit insurance.” This, however, was a misreading of history. History had merely shown that these particular types of plans were unworkable; it shed but little light on the probable success of broader and better-managed plans. Among the important reasons for the failure of these plans were the following: (1) Their coverage was too narrow. Each plan included only the state banks within the state, the states were primarily agricultural and often heavily reliant on a single crop, the insured banks were typically small, and these states had long had high bank failure rates. (2) The banks were not properly examined before they came under the plans, with the result that many were near insolvency at the time. (3) The plans were not soundly financed, and the insurance premiums were often inadequate. That such plans as these should fail was only to be expected.

During the surge of bank failures after 1929 a demand for deposit insurance under the sponsorship of the federal government became widespread. The Banking Act of 1933 provided a temporary plan for such insurance, but this was superseded in 1935 by the permanent plan which we shall describe here. This plan is administered by the Federal Deposit Insurance Corporation (hereafter referred to as the FDIC). The FDIC received its charter from the federal government and is managed by a board of directors made up of the Comptroller of the Currency and two men appointed by the President of the United States with the advice and consent of the Senate. To meet its expenses and the claims of depositors, the FDIC has four principal sources of funds: (1) its capital of \$289 million, which was subscribed by the Treasury and the Federal Reserve banks, (2) its ability to sell its own bonds, (3) the insurance premiums it collects from insured banks, and (4) earnings from the investment of its unused funds.

All member banks of the Federal Reserve System, including both national and state bank members, must participate in the FDIC plan. Non-member state banks may at their option secure this insurance if they can meet the FDIC standards, as may mutual savings banks. That the FDIC now covers most of the commercial banks of the country is shown in Table 35. The FDIC does not insure the total deposits of each

TABLE 35. INSURANCE STATUS OF COMMERCIAL BANKS IN THE UNITED STATES, DECEMBER 31, 1945¹²

Insurance Status	Number of Banks	Per Cent of All Commercial Banks	Total Deposits of Banks (In millions)	Per Cent of All Commercial Bank Deposits
Insured with the FDIC	13,302	94.5	\$147,811	97.8
Non-insured	777	5.5	3,278	2.2
Total	14,079	100.0	\$151,089	100.0

bank; instead it insures only the first \$5000 of each depositor's claim against a bank. To cover the cost of this insurance each bank pays the FDIC an annual premium equal to $\frac{1}{12}$ of 1 per cent of its total deposits. In other words, the insurance covers only the first \$5000 of each depositor's claim against a bank, whereas premiums are based on the bank's total deposits.

The insurance premiums charged by the FDIC have been criticized from several points of view. (1) Large banks complain that all the members of the plan pay uniform premiums, whereas the failure rate of small banks is much greater than in the case of large banks. They would like non-uniform premium rates based on the probability of loss to the FDIC. Though this proposal has merit, there are at present insufficient actuarial data to support classified premium rates. (2) Large banks object to having assessments based on total deposits while the insurance covers a maximum of \$5000 of each deposit. They point out that a bank dealing mainly with small depositors has most of its total deposits covered, whereas when a bank has large deposit accounts a much smaller per-

¹² Source: FDIC, *Annual Report 1945*, p. 111.

centage of its total deposits are covered. (3) Some banks now complain that the annual assessment of $\frac{1}{12}$ of 1 per cent of total deposits has proved to be far in excess of needs and that the premium rate should be drastically reduced. It is true, of course, that the actual cost of deposit insurance in 1935-47 was far less than the amount of the premiums collected by the FDIC. But this was only to be expected. By 1935 the banking system had been fairly well purged by the widespread failures during the preceding years, only sound banks were granted insurance, the period was largely one of business recovery and unusually high wartime prosperity, and bank suspensions were abnormally low. Certainly such a period should not be taken as an indicator of future losses, especially if we do not stabilize business in general and do not improve the banking structure.

The importance of the FDIC is greatly underestimated by those who consider it merely a passive insurance company that protects the depositors in failed banks. In the first place, it can decrease the failure rate through its examination and supervision of insured banks. It promises to be particularly useful in raising the standards of the thousands of small state banks that are not members of the Federal Reserve System. In the second place, the presence of deposit insurance may prevent sporadic bank failures from generating an epidemic of runs on banks. And in the third place, the FDIC has greatly improved the handling of distressed and failed banks. In a typical case before 1935, a distressed bank would be forced to close, the community would lose the bank's service, depositors' claims would be frozen for long periods of time, and an appointed receiver would slowly, and often very expensively, liquidate its assets. Now when an insured bank gets into financial difficulties, the FDIC may take any one or more of several actions. (1) It may lend to the bank in an effort to rehabilitate it and enable it to continue in operation. This is done only where such action promises to reduce the cost to the FDIC in the long run. (2) It may make loans to facilitate the merger or consolidation of the distressed bank with another insured bank in the same area. In this way the FDIC enables another bank to assume the obligations of the dis-

tressed bank without weakening itself. (3) It may close the distressed bank and pay insured depositors quickly by giving them deposit credits at another insured local bank. (4) It may close the distressed bank and, if adequate local banking facilities are not available, open a new national bank in which it makes deposit accounts available to those who held insured deposits in the closed bank.

It is as yet too early to know whether the FDIC will be a success. A few conclusions regarding it seem justified, however. (1) The fact that most of our smaller deposits are insured against loss should not make us any less eager to correct the faults in the structure and practices of our banking system that have in the past produced so many failures. (2) The success of deposit insurance will depend to a considerable extent on our success in maintaining a high and stable level of employment and production. (3) One of the prime requirements of a good monetary system is that all moneys included in it always be kept at parity with each other. This requirement cannot be met unless checking deposits, which are by far the largest part of our money supply, are kept at parity with our coin and currency. The FDIC may be considered a mechanism for maintaining deposits at parity with other money. (4) The fact that this insurance is limited to the first \$5000 of each deposit account is a weakness in the present FDIC plan. The larger depositors can still produce devastating runs on banks.

BANK SUPERVISION

We cannot here go deeply into the complicated questions of chartering and supervising banks in the United States, but we can look at a few of the principal issues. The first is this: Should states be permitted to charter commercial banks? Many people answer in the negative. We have seen that checking deposits now make up by far the larger part of our money supply and that monetary management, which is admitted to be a central government function, is essentially the management of bank credit. But the effectiveness of monetary management is unquestionably reduced by the fact that banks

are chartered not only by the federal government but also by the 48 states, and that some of the states are lax in chartering and supervising them. Many therefore deny states the right to charter banks. However desirable this might be, it does not seem to be feasible. States have chartered banks for more than 150 years and it is unlikely that they will be deprived of this traditional power in the near future.

Should all checking deposit banks be required to become members of the Federal Reserve System? We might continue to allow states to charter banks but provide that banks must also meet the requirements of the Federal Reserve Act and abide by Federal Reserve regulations if they are to engage in deposit banking. There is much to be said for this requirement, as we saw in an earlier chapter. But if this is done, the state banks that cannot meet the minimum capital requirements for Federal Reserve membership will pose a difficult problem. It would seem unwise for the Federal Reserve to lower or suspend its capital requirements; on the other hand, some of the banks would be unable to raise enough additional capital to meet them. Are we willing to force these banks out of business in order to achieve higher banking standards?

Should all commercial banks be required to insure their deposits with the FDIC? Table 35 shows that this is not a widespread problem, for less than 6 per cent of all such banks are outside the insurance plan. Yet these 777 banks are not protecting their depositors, either because they cannot meet the minimum FDIC standards or because they are unwilling to incur the cost of insurance. If depositors in these non-insured banks freely chose them rather than insured banks, they probably would deserve little sympathy. In some cases, however, they have little or no choice, for they do not have easy access to an insured bank. This is especially true in small one-bank towns.

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The Mechanism of International Payments

MOST OF OUR DISCUSSION UP TO THIS POINT HAS RELATED TO the functions and behavior of money within a given country; little attention has been paid to international monetary relations. The purpose of this chapter, as well as of the next three, is to study the use of money in payments made across national boundary lines by governments, business firms, and individuals. Fortunately for us, many of the principles of internal trade are equally applicable to international trade. International trade, like domestic trade, is essentially barter; in the final analysis goods and services are exchanged for goods and services. But barter as a method of trade is at least as clumsy and inefficient in international transactions as it is in domestic trade. In fact, it is probably even less satisfactory in international trade because of the greater distances involved. The use of money is essential to the full development of international trading and lending. Moreover, international payments, like domestic payments, are facilitated by types of money that can be transported quickly, cheaply, and safely. It would, of course, be possible to make all international payments by the actual shipment of precious metals in coin or bullion or the shipment of paper currency. This would be costly; payments could be made no faster than the available means of transportation permitted, freight costs would be high, and the risk of loss would be ever present. To

avoid these costs and inconveniences, international payments, like domestic payments, are generally made by transferring debt (or credit) claims from payers to payees, and the transfers are typically made through the use of bills of exchange or telegraphic orders. Banks serve the same function in international payments that they do in domestic payments. Since the bills of exchange or telegraphic orders are usually drawn on banks, bank debts are the principal money used in international transactions. We customarily pay foreigners by giving them claims against American or foreign banks, and foreigners pay us by giving us claims against American or foreign banks.

The principal difference between international and domestic payments arises from the fact that international payments usually involve two moneys rather than one. An American may pay an Englishman with claims against either pounds sterling or dollars. If the American is to pay with pounds sterling, he usually has to go into the market and use his dollars to buy claims against pounds; he must "exchange" dollars for pounds. If payment is made in dollars, the Englishman, who keeps his books in terms of pounds and uses this unit in his domestic business, usually sells these dollar claims for pounds. To facilitate the exchange of national moneys for each other there are "exchange markets" in every important country. In these markets United States dollars, English pounds, French francs, Canadian dollars, Argentine pesos, Austrian schillings, Brazilian milreis, Danish kroner, German marks, and many other moneys are exchanged for each other. What are actually bought and sold are bills of exchange and telegraphic orders stated in terms of the various moneys. These claims are often called "exchange." Thus, "dollar exchange" means claims against dollars, "sterling exchange" means claims against pounds sterling, and so on. The term "foreign exchange" is often used in referring to claims against foreign money in general.

The exchange of one national money for another necessarily involves an exchange ratio between the two, that is, a price of each in terms of the other. These are usually called "exchange rates." Thus, if we say that the exchange rate between pounds

and dollars is $\text{£}1 = \$4.00$ we mean that a pound will exchange for \$4 in the exchange market, or \$1 will buy a quarter of $\text{£}1$. A change in the exchange rate to $\text{£}1 = \$4.50$ indicates a rise in the value of the pound in terms of dollars or, what is the same thing, a fall of the dollar in terms of pounds. Conversely, a change to $\text{£}1 = \$3.50$ indicates a fall of pounds in terms of dollars, or, what is the same thing, a rise of the dollar in terms of pounds. We shall consider exchange rates at length in the next chapter. It is sufficient at this point to note that such rates exist, that at any time all the national moneys are linked together by a web of exchange rates, and that in a free market the price of these moneys in terms of each other is determined by the supply of each and the demand for each.

THE BANKS AND INTERNATIONAL PAYMENTS

The mechanism of international payments cannot be understood without an appreciation of the close relationships among the banks of the various countries. Each nation has its own banking network, and these national networks are connected with each other in various ways, usually through the larger banks. For example, some of our large banks—especially those in such cities as New York, Boston, Philadelphia, Chicago, San Francisco, Los Angeles, and New Orleans—have direct access to banking facilities in practically all the principal countries of the world except Russia, and indirect access to still others. These international connections are maintained in two principal ways: (1) through foreign branches, and (2) through correspondent relationships among the banks. A number of the larger banks in this country, such as the Chase National Bank, the Guaranty Trust Company, and the National City Bank, operate foreign branches. Several of the English banks maintain branches in various parts of the world, as do banks in such countries as France, Holland, and Canada. These foreign branches engage in many types of activities. In some cases they carry on a general banking business if this is permitted by the laws of the country in which they are located. They facilitate international pay-

ments in various ways. They perform many routine functions, such as credit analysis and collection, for the main office; they draw and sell drafts on that office; they pay drafts drawn by that office on them; they issue letters of credit; they accept time drafts drawn on them; and so on. Though foreign branches are very useful in facilitating international payments, they are probably less important in connecting the various national banking systems than are the correspondent relationships among the large banks of the different countries.

The nature of these correspondent relationships can be illustrated by a hypothetical example in which the Chase National Bank of New York and the Midland Bank, Ltd., of London become correspondents of each other. Under such an arrangement each performs many functions for the other, compensation being fixed by the agreement or by later negotiation. (1) Each performs for the other such routine functions as collecting claims against others, securing the acceptance of time drafts drawn on others, and so on. (2) At least one of the banks maintains deposit accounts with the other, and usually they maintain deposit accounts with each other. For example, Midland may hold deposits with Chase, and Chase may hold deposits with Midland. (3) Each may agree to lend to the other up to a stipulated maximum amount, with certain safeguards. Suppose, for example, that you wish to buy a £100,000 draft at a time when the exchange rate is £1 = \$4.00. Chase may sell you such a draft on the Midland Bank even though its deposit account with Midland is depleted at the time, and Midland will pay the draft. Chase may continue to owe Midland £100,000 for a time, or it may immediately purchase sterling bills and send them to Midland to replenish its account, or it may pay Midland by crediting \$400,000 to its account in New York.

It is easy to see how this vast network of correspondent relationships facilitates international payments. Americans can make payments abroad with telegraphic orders or drafts drawn by their banks on foreign correspondent banks. And foreigners can pay us with telegraphic orders or drafts drawn by their banks on American correspondents. It is interesting to note that an American bank, such as the Chase National,

can even sell drafts on foreign banks with which it has no direct correspondent relationship. Suppose that you wish to make a £10,000 payment in Sydney, Australia, but neither Chase nor any other American bank has a correspondent there. Chase might nevertheless sell you a £10,000 draft on a Sydney bank, informing the bank that on payment of the draft its account with Midland in London will be credited by an equivalent amount. In effect, you pay Chase, Chase pays Midland, Midland pays the Sydney bank, and the Sydney bank pays the Australian payee. All these payments can be made by crediting and debiting deposit accounts.

We have seen how the international connections among big banks, especially those in the major centers of international finance, facilitate international payments. But how can the residents of smaller cities and other customers of banks that have no direct foreign connections make payments abroad or collect from abroad? This is an easy problem in countries with nation-wide branch banking systems. In England, for example, almost everyone has access to a branch of some big bank which has foreign connections. In countries like the United States where there are many banks that do not have direct foreign connections, the problem is solved almost as easily by our widespread system of domestic correspondent relationships. For example, suppose that you live in Wichita, Kansas, and wish to pay £500 in Liverpool, but your bank has no foreign account. It is likely, however, to be a correspondent of a Chicago or New York bank that does have a foreign account. In this case your bank may draw a draft on an English bank, instructing it to charge the draft against the account of the Chicago or New York bank. Even if your bank has no correspondent bank with foreign connections, it can buy a sterling draft for you from some other American bank, and all the internal payments, as well as the payments between the American and English banks, can be made by crediting and debiting deposit accounts.

Having surveyed briefly the general methods of international payment and the international bank relationships that facilitate these payments, we can now look at the mechanism in greater detail. We shall emphasize many times the domi-

nant role played by bills of exchange and telegraphic orders drawn on banks; but to illustrate principles and to indicate why orders on banks are now so widely used we shall first describe how trade bills may be used as a means of payment in international trade.

TRADE BILLS IN INTERNATIONAL TRADE

To illustrate the use of trade bills—that is, drafts on drawees other than banks—in international trade, let us assume two basic transactions. (1) Jones of New York sells £100,000 worth of cotton to Churchill, Ltd., of Liverpool, and draws a draft on Churchill, Ltd., ordering it to pay £100,000 to himself or order 30 days after date. (2) At or about the same time Weathers of New York buys £100,000 worth of cutlery from Sheffield, Ltd., promising to remit that amount in 30 days. Suppose also that the prevailing rate of exchange on this type of draft is £1 = \$4.00. How can the necessary international payments be made without the shipment of bullion, coin, or paper money? Jones, either directly or through middlemen in New York, may sell to Weathers for about \$400,000 the sterling draft drawn on Churchill, Ltd. Jones has now received payment in dollars for his cotton. Weathers then sends the sterling draft to Sheffield, Ltd., which in due time collects £100,000 from Churchill, Ltd. Both transactions have been paid for without any international shipment of gold, silver, or paper money; exports have paid for imports through the clearing of debts. Weathers, the American importer, has paid Jones, the American exporter, in dollars. And Churchill, Ltd., the English importer, has paid Sheffield, Ltd., the English exporter, in pounds sterling.

Though international payments can be made with trade bills, this method has several disadvantages. (1) Neither the drawee nor the drawer of the trade bill—in this case Churchill, Ltd., and Jones—may be well known; hence the endorsed bill may not be easily salable. Weathers would hesitate to buy the bill if he feared that it would not be paid promptly and in full. A bill drawn under a letter of credit issued by a large

bank is likely to be much more negotiable. (2) The denomination of the bill may not fit the exact needs of those who are to make international payments. It might be difficult to find anyone who wanted to make a payment of neither more nor less than £100,000 in England. (3) The maturity date of the bill may not fit the exact needs of buyers. In our example, the bill drawn by Jones was payable only at the end of 30 days. Buyers, however, may want sterling claims payable either sooner or later than that. For these reasons trade bills are not widely used in international trade; moreover, when they are used the mechanics are usually somewhat different from those described above.

If Churchill, Ltd., is well enough known so that bills drawn on it are widely salable, Jones may draw a draft on it and proceed as follows. He will endorse the draft and sell it to his bank for approximately \$400,000. His bank will then send the draft to its London correspondent, which will have Churchill, Ltd., accept the draft and will then discount (sell) the acceptance in the London discount market. In this way the American bank will secure a deposit credit of slightly less than £100,000 in London. Thus American exports have been used to build up deposit credits abroad, and American banks are enabled to sell about £100,000 of sterling drafts to Americans who wish to make payments abroad. The method of payment described in this paragraph is still used to some extent. Much more common, however, is the use of bills of exchange drawn on banks.

BANK BILLS OF EXCHANGE IN INTERNATIONAL TRADE

If Churchill, Ltd., and Jones decide that their cotton transaction is to be financed by means of a time bill of exchange drawn on a bank, they will proceed somewhat as follows. Churchill, Ltd., will secure a letter of credit from an English bank, the bank agreeing to accept a draft drawn on it if the draft does not exceed £100,000, if the maturity is not more than 30 days, if the cotton is of stipulated weight and quality,

and if the draft is accompanied by certain documents, such as an order bill of lading, an all-risk insurance policy, and port clearance papers. The letter of credit will be sent to Jones, who will put the cotton on a ship and secure an order bill of lading, an all-risk insurance policy, and the necessary clearance documents. Jones will then draw a draft on the English bank ordering it to pay £100,000 to him or his order 30 days later. He will then take the draft, with all documents including the letter of credit attached, to his bank and sell it for approximately \$400,000. His bank will then send the draft and attached documents to its London correspondent, which will have the draft accepted, surrender the attached documents to the accepting bank, and sell the draft for approximately £100,000 in the London discount market. The American bank is thus put in a position to sell sterling drafts to Weathers and others who want sterling. Here again we see that American exports are used to build up foreign credits that may be used by Americans to make payments abroad. It is also true, of course, that foreign exports to us build up credits here which foreigners can use to make payments to us.

All of our discussion up to this point has dealt with international payments arising from our exports and imports of commodities. There are, however, many other kinds of transactions that necessitate international payments and affect the amounts of national moneys flowing into exchange markets to be exchanged for each other. We shall now look at these transactions more closely.

A NATION'S BALANCE OF INTERNATIONAL PAYMENTS

By a nation's balance of international payments we mean a statistical estimate of all its international economic transactions during a stated period of time; this is usually a year, though balances of payments for shorter periods are now available. Table 36 shows the balance of payments of the United States for a pre-war year, 1936. A similar balance of international payments can be drawn up for every other country.

It will be noted that the transactions in a nation's balance of international payments are classified in two general categories, *credits* and *debits*. Each of these terms has its own specialized meaning and is not to be confused with other

TABLE 36. UNITED STATES BALANCE OF PAYMENTS FOR 1936¹
(In Millions of Dollars)

Item	Matured American Claims to Payment by Foreigners (Credits)	Matured Foreign Claims to Payment by Americans (Debits)	Net Debits (-) or Credits (+)
Merchandise and service items			
Merchandise	\$2522	\$2463	+\$ 59
Freight and shipping	68	129	- 61
Tourist expenditures	125	497	- 372
Immigrant remittances	5	115	- 110
Charitable contributions	—	32	- 32
Interest and dividends	568	238	+ 330
Total trade and service items	\$3288	\$3474	-\$186
Gold and silver			
Gold	\$114 ^a	\$1144	-\$1030
Silver	3	183	- 180
Total gold and silver items	\$117	\$1327	-\$1210
Capital items			
Long term	\$3475	\$2717	+\$ 758
Net short-term capital movement			+392
Balance on capital account			+\$1150
Omissions and unrecorded items			-\$246

^a Includes \$86 million of gold "earmarked" for foreign accounts but not physically exported.

things carrying the same or a similar name. A *credit* in a nation's balance of international payments is any transaction which *during the period covered by the statement* causes payments to be made from abroad to that country or its residents. Thus, credits in our balance of payments for any stipulated period include all international transactions that cause for-

¹ U. S. Bureau of Foreign and Domestic Commerce, *The Balance of International Payments of the United States in 1936, 1937*, p. 2.

eigners to pay us during the period. Foreigners may make these payments to us either by giving us claims on foreign money or by using their money to buy dollar claims which they remit to us. In either case, credits in our balance of payments cause foreign money to be offered in exchange for dollars, either in our own exchange markets or in exchange markets abroad. For the sake of convenience we shall hereafter look upon credits in our balance of payments as the source of supply of foreign money to the residents of this country.

A *debit* in a nation's balance of international payments is any transaction which *during the period covered by the statement* causes payments to be made abroad by that country or its residents. Thus, debits in our balance of payments include all international transactions that cause us to pay foreigners during the period. We may pay foreigners either by purchasing and remitting to them claims on foreign money, or by giving them dollars. In either case debits in our balance of payments cause a purchase of foreign money with dollars either in our own exchange market or in exchange markets abroad. Thus, we may say that debits in our balance of payments generate the demand for foreign money by the residents of this country.

Before analyzing credits and debits in more detail, it is necessary to emphasize two facts about them. (1) In a nation's balance of payments for any stated period, total credits and total debits must be equal. We may say that total credits in a nation's balance of payments for a stated period represent all payments to it from abroad during the period and that its total debits show the various ways in which all these payments are utilized, for all the credits are utilized in some way. Or, alternatively, we may say that total debits represent all the payments made abroad by the nation during the period and that total credits are the sources of the funds with which these foreign payments are made. (2) What is a credit to one nation is a debit in some other nation's balance of payments for the same period. For example, an export of wheat by the United States is a credit in our balance of payments, but a debit to the importing country.

Credits

The principal transactions that generate a supply of foreign money to the residents of this country during a given period are the following:

1. Commodity exports, including gold and silver.
2. Shipping and insurance services performed by Americans for residents of foreign countries.
3. Tourist expenditures in the United States by foreigners.
4. Sales of securities by residents of this country to residents of foreign countries, and short-term borrowings by Americans from residents of foreign countries.
5. Payment by foreigners of long-term or short-term loans that Americans have previously made to them.
6. War debt and reparations payments from foreigners to this country.
7. Interest and dividend payments from foreign countries to Americans.
8. Remittances by foreigners to friends, relatives, or charitable and educational organizations in the United States.

No further discussion of most of these transactions should be needed to establish the fact that during the period in which they occur they cause foreigners to pay us either by giving us claims against foreign money or by purchasing dollar claims to remit to us. A few, however, may not be clear. Our exports of gold and silver, like other commodity exports, are credits in our balance of payments, for the foreign purchasers must pay us by giving us balances abroad or by purchasing dollars to remit to us. Items 4, 5, and 6 are often called "capital imports," though they are more easily understood if they are called exports of securities and other similar claims. Some of these represent foreign purchases of American stocks, bonds, short-term credit instruments, and claims against American banks. Others represent the resale to foreigners of foreign stocks, bonds, short-term credit instruments, and claims against foreign banks that were previously held by Americans. But whether foreigners buy claims against Americans or re-

purchase claims against foreigners that were previously held by Americans, they must make payment to us. These transactions are called "capital imports" in our balance of payments because they are methods of shifting funds on capital account to this country, either by Americans or by foreigners. We shall see later that a distrust of foreign money or a higher interest rate in our markets can lead to a large demand for dollars as a means of securing safety or a higher income.

Debits

The principal transactions that cause us to make payments to foreigners during any period, thereby generating a demand by Americans for foreign money or increasing the supply of dollars paid to foreigners, are the following:

1. Commodity imports, including gold and silver.
2. Shipping and insurance services performed by foreigners for residents of the United States.
3. Tourist expenditures in foreign countries by Americans.
4. Our purchases of securities from residents of foreign countries, and short-term borrowings by foreigners from residents of the United States.
5. Payments by Americans of long-term or short-term loans which foreigners had previously made to us.
6. Interest and dividends paid by Americans to residents of foreign countries.
7. Remittances by Americans to friends, relatives, or charitable and educational organizations in foreign countries.

Though it should be relatively easy to see why most of these transactions cause Americans to make payments to foreigners during the period covered by the balance of payments, a few of the items may need further clarification. Gold and silver imports, like imports of other commodities, are debits in our balance of payments, for we must demand foreign money with which to pay for them or give dollars to foreigners for them. Items 4 and 5 are often called "capital exports," though they are more easily understood if they are called imports of se-

curities and other similar claims. Some of these are American purchases of foreign stocks, bonds, short-term credit instruments, and claims against foreign banks. Others represent the repurchase by Americans of American securities previously held by foreigners. But whether we purchase foreign securities or repurchase American securities from foreigners, we must make payments to them. Thus, capital exports from this country represent a shifting of funds on capital account to other countries by either Americans or foreigners.

Balances of Payments as Analytical Tools

Balances of international payments are powerful tools of analysis that should not be neglected by anyone interested in international economic relationships. In the first place, as we shall emphasize in the next chapter, a nation's balance of payments can be used to analyze the supply of foreign money offered in exchange for its own money, and the demand for foreign money on the part of own residents. All the credit items in our balance of payments cause foreign money to be offered in exchange for dollars, either in the American exchange market or in exchange markets abroad. And all the debit items in our balance of payments cause dollars to be offered in exchange for foreign money, either in our own or in foreign-exchange markets. Thus by analyzing balances of payments we can shed light on the supply of and the demand for the various national moneys in the exchange markets.

In the second place, balances of payments can be used to analyze the ability of countries to buy and sell abroad. How much can we buy abroad and lend abroad during any period? This total depends upon the volume of credits accruing to us—our exports of goods and services, including gold and silver; our exports of securities and similar claims; our receipts of interest and dividends from abroad; and our other credits. On the other hand, how much can foreigners buy and lend here? This total depends on the quantity of dollars we make available to them through our debit transactions—our imports of goods and services, including gold and silver; our purchases of securities and similar claims abroad; our pay-

ments of interest and dividends to foreigners; expenditures abroad by American tourists; and our gifts to foreigners. Every Congressman and Senator should be forced to memorize the fact that our total credits cannot exceed our total debits; that foreigners can pay us no more than we pay them. If our legislators kept this constantly in mind they might be less prone to insist that foreigners take large amounts of our exports, pay us interest on our investments abroad, and meet war debt payments promptly while we follow a policy of restricting our imports of goods and services and of prohibiting further borrowing here by foreigners who are in default on their obligations.

In the third place, balances of payments can be used to analyze international gold flows. These gold flows are usually considered to be balancing items in a nation's balance of payments. A nation imports gold when its credits—payments to it for exports of goods, services, securities, and so on—exceed its other debits. Its gold imports are equal to its total credits minus its other debits. A nation exports gold when its payments to others—its debits—exceed its other credits. Its gold exports equal its total debits minus its other credits.

MULTILATERAL TRADE AND MULTILATERAL PAYMENTS

We saw in the first chapter that one of the great advantages of using money in trade is that it enables the possessor of a good or service to sell to the persons who will give him the highest price, and then use the money to buy the things he wants most from the seller who offers the best bargain. The seller is not forced to buy from the person to whom he sells. This fact is very important in international trade. We may find that Great Britain is an excellent market for our cotton but that it would be less advantageous for us to buy British products than to spend the receipts from our exports for Brazilian coffee or Argentine tanning extracts. France may find it most advantageous to borrow here because of our low interest rates, but it may want Swedish paper or Danish dairy

products more than American exports. To make its maximum contribution to international trade and welfare, an international monetary mechanism must permit buyers to purchase in the most favorable markets; it must not force Nation A to buy from Nation B simply because Nation B purchased from Nation A. Exchange markets that permit unhindered trading in money afford this freedom of buying. We saw earlier that in a nation's balance of payments for any period total credits must equal total debits. But this is true only of its relations with all other nations taken as a group; it need not be true of its relations with any other one country. For example, our payments to one group of countries during a given period may far exceed their payments to us, and our payments to another group of countries may be far less than their payments to us. Any attempt by us to secure an equality of debits and credits with each individual foreign country would be about as wise as requiring a farmer to spend all his money at the mill that purchases his wheat.

Let us now see how unrestricted exchange markets facilitate multilateral trade and multilateral payments. Suppose that Americans export £1,000,000 worth of wheat to England and receive payment in sterling. Our exporters will sell their sterling claims to our banks for dollars, and the banks will be in a position to sell sterling to those who wish to make payments abroad. Americans may not want to buy in England but may wish to buy Brazilian coffee. They may therefore buy sterling drafts and remit them to Brazilian coffee exporters. These exporters will sell the sterling claims to their banks for milreis, and the Brazilian banks will have sterling for sale. Brazilian importers may buy the sterling and remit it to France to pay for women's clothing purchased there. French exporters will sell the sterling to their banks for francs, and the French banks will have sterling for sale. French importers may then buy the sterling to pay for imports of industrial materials from England. This example, admittedly simpler in its mechanics than many actual cases, illustrates the principles of multilateral trade and multilateral payments. No two of the countries balanced their trade with each other;

England bought from us, we bought from Brazil, Brazil bought from France, and France bought from England. By the unhindered exchange of money, each nation was enabled to sell in the most favorable market and to buy the things it wanted most where they were available on the most favorable terms.

It is also worth noting that free exchange markets permit borrowers to use the proceeds of international loans in the ways they consider to be most advantageous. Suppose, for example, that a French public utility company borrows \$10 million in New York. It may wish to purchase only domestic labor and materials and will therefore sell the dollar proceeds of the loan for francs. Other Frenchmen may remit the dollars to Argentina for needed foodstuffs and raw materials, and an Argentine railroad may remit the dollars to us for locomotives. In the final analysis, the loan has enabled France to increase its imports, but it imported what it wanted most from the most favorable world market. And our loan to France increased our exports, but to Argentina rather than to France.

To understand the efficiency of exchange markets unhindered by government restrictions on the trading in money, we must remember that the principal exchange markets of the world are connected by cable, telephone, and radio-telephone and that the various national moneys can be exchanged for each other in the various markets quickly and cheaply. This is especially true of telegraphic orders to pay. Thus, dollars can be used to buy a telegraphic order on a French bank, the francs can be used in Paris to buy claims on a Brussels bank, the Belgian francs can be used to buy claims on a London bank, and the pounds can be used to buy other money. Because of the speed and efficiency of these interconnected exchange markets, the owner of one money can trade it for any other money quickly and cheaply, either directly or through a chain of transactions of the type discussed above. And all the moneys are linked together by a network of exchange rates that are consistent with each other. This may not be true, of course, when government restrictions prevent free trading in money.

THE STRUCTURE OF EXCHANGE RATES IN A GIVEN MARKET AT A GIVEN TIME

It is not strictly true, as was implied earlier, that there is only one exchange rate at a given time in a given exchange market, such as New York, between two moneys. There is, instead, a cluster of exchange rates between the two, though all of them fall within a narrow range. In the first place, dealers in foreign exchange buy foreign money at prices slightly lower than those at which they sell them. For example, a dealer may pay you only \$484 for a £100 demand draft on a London bank, but at the same time charge buyers \$485 for a £100 demand draft on a London bank. It is out of this margin between buying and selling prices that exchange dealers meet their expenses and make their profits.

And in the second place, the price of any foreign money varies with the kind of claim that is being bought and sold. For example, the schedule of sterling rates in the New York market at a given time may be:

Cable rate	\$4.855
Sight rate (banker's demand drafts)	4.85
Rate for 60-day banker's bills	4.8225

Thus at any time the cable rate is the highest, followed by the rate on sight or demand drafts and then by the rate on time bills. This is because of differences in the time that sterling is paid out abroad. If a cable order is used, the selling bank loses that amount of its sterling balance almost immediately. If, however, the bank sells a sterling demand draft it does not lose its sterling balance until several days later when the draft has traveled to England and been presented for payment. In effect, the bank has the use of its funds for the intervening period, so the sight draft rate is below the cable rate by the amount of interest for the time the demand draft needs to be sent to England and presented to the drawee bank for payment. Lowest of all is the rate on time bills, because they are not payable until a future date. The

rate on a sterling time bill is equal to the prevailing rate on sterling demand drafts less interest for the duration of the time bill.

In some of the following sections it will be convenient to speak of "the exchange rate" between two moneys. Unless otherwise indicated, we shall be speaking of the rates applicable to sight or demand drafts on banks.

ARBITRAGE IN EXCHANGE

It is easy to see how competition will tend to establish one rate of exchange between two moneys in a given market at a given time. For example, the price of sterling cables tends to be the same in all New York banks at any moment. But may not exchange rates between two moneys be quite different in two widely separated markets, such as New York and London? This is impossible in unrestricted markets, largely because of the possibility of arbitrage in the moneys. By arbitrage we mean the simultaneous purchase of something in a cheap market and its sale in a dear market for the purpose of making a profit out of the price differences between the markets. Arbitrage must not be confused with speculation. The purpose of speculation is to make a profit out of price differences between different points of time. The purpose of arbitrage is to profit from price differences between different markets at the same point of time. Most of us are familiar with arbitrage in commodities; we know, for example, that arbitrage will not allow the price of wheat in Chicago at any time to differ from the Kansas City price by more than the cost of transportation plus a very small amount of profit for the arbitrageur.

In a similar way arbitrage in exchange prevents rates in New York from differing by more than a very small amount from rates in London and other exchange markets. Exchange arbitrage is carried out through cable orders. Let us look first at what is usually called "two-point arbitrage," and suppose that the cable rate in New York is £1 = \$4.86 and in London

it is £1 = \$4.85. Pounds are higher in New York in terms of dollars than they are in London, or, to put it another way, dollars are cheaper in New York in terms of pounds than they are in London. An arbitrageur, who might be the foreign-exchange department of a big New York bank, could make abnormally high profits out of this discrepancy. He could sell a £100,000 cable in New York for \$486,000 and at the same time order his London correspondent to draw a cable order on him for \$485,000 and sell it in London for £100,000. The arbitrageur thus makes a gross profit of \$1000; his net sterling position is unchanged, for he sold £100,000 in New York where sterling was relatively dear and purchased £100,000 in London where it was relatively cheap. But he collected \$486,000 on his sale of sterling in New York and he has to pay only \$485,000 for the sterling purchased in London. The effect of these transactions is to equalize exchange rates in New York and London. The sale of sterling in New York tends to lower its dollar price there, and the purchase of sterling in London tends to raise its price in terms of dollars in that market. Exchange rates in the two markets must be practically the same after arbitrageurs have completed their operations. In fact, discrepancies as great as the one assumed in our example could hardly occur in a market free from restrictions, because exchange arbitrageurs are always on the alert and can make good profits from very small margins. For this reason we can with but little inaccuracy speak of one exchange rate between two moneys at a given time without specifying the market to which we are referring.

The above example referred to two-point arbitrage in which arbitrageurs dealt in only two markets at once. But they can also deal in three or more markets simultaneously, thereby helping to establish a consistent network of exchange rates at any time. For example, an American may purchase pounds directly with dollars, or he may first purchase some other money with dollars and then use the other money to buy pounds. In unrestricted markets arbitrageurs act in such a way as to make the cost of each foreign money approximately the same whether it is purchased directly or through a series of exchange transactions involving several moneys. To illus-

trate the principle of three-point arbitrage, let us assume that the following exchange rates exist at a given point of time:

$$£1 = \$4.89$$

$$1 \text{ French franc} = 3.95 \text{ cents}$$

$$£1 = 121 \text{ francs}$$

An arbitrageur could make abnormal profits from this situation by selling pounds for dollars in New York, buying francs with dollars in New York, and selling francs in Paris for pounds. Let us look at the operations he would carry out simultaneously.

1. He would sell £100,000 in the New York market for \$489,000.
2. In the New York market he would pay \$477,950 for 12,100,000 francs at 3.95 cents each.
3. In the Paris market he would sell the 12,100,000 francs for pounds at the rate of 121 francs to the pound, thereby regaining the £100,000 that he sold in New York.

By this series of transactions the arbitrageur would make a gross profit of \$11,050, for he sold sterling for \$489,000 and repurchased it for only \$477,950 by the circuitous process of exchanging dollars for francs and francs for pounds. But his operations also tended to erase the profitability of further operations of this type. His sale of sterling for dollars in New York tended to lower the price of sterling in terms of dollars; his purchase of francs tended to raise the price of francs in terms of dollars; and his purchase of pounds with francs tended to raise the price of pounds in terms of francs. Arbitrage transactions of this type would not cease until pounds cost almost exactly the same amount in dollars whether purchased directly or through transactions in other foreign moneys. In fact, arbitrageurs are so alert that only very small discrepancies could occur in a free market. The following exchange rates are consistent with each other:

$$£1 = \$4.88$$

$$1 \text{ French franc} = 4 \text{ cents}$$

$$£1 = 122 \text{ French francs}$$

At these rates £100,000 would cost \$488,000 whether dollars are used to purchase sterling directly or to purchase French francs which are then exchanged for sterling.

SPECULATION IN EXCHANGE

Speculators buy and sell claims against money just as they buy and sell securities and commodities. And the motives for speculation are the same in all these cases—a desire to profit from price changes through time. Suppose, for example, that a speculator expects French francs to rise in terms of dollars, and that the rise will be from the current level of 3.95 cents to 4 cents a franc. He can profit by purchasing francs with dollars or, what is the same thing, selling dollars for francs. He can buy 1 million francs at 3.95 cents each for \$39,500 and later, if the expected rise occurs, sell them for 4 cents each, thereby making a gross profit of \$500. If, on the other hand, he expects francs to fall in terms of dollars, he can profit by selling francs at the high current price and repurchasing them later at lower prices.

The effects of speculation in exchange markets are as complex as they are in security and commodity markets. Some kinds of speculation tend to stabilize exchange rates. If speculators expect the price of a money to be stable over a longer period, they may help to reduce its short-term fluctuations by purchasing it when its price falls below the trend and by selling it when its price rises above the trend. On the other hand, some types of exchange speculation, like some types of security speculation, aggravate fluctuations. Attempts by speculators to manipulate exchange rates are not unknown, and speculators sometimes aggravate price rises and declines in exchange markets just as they do in securities markets.

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Exchange Rates

WE SAW IN THE PRECEDING CHAPTER THAT INTERNATIONAL payments, like payments within a country, are usually made with drafts or cable orders drawn on American or foreign banks. But since each nation has its own money, an international payment ordinarily involves the exchange of one national money for another. In each case where moneys are exchanged for each other there must be an exchange rate—a price of each money in terms of the other. The purpose of this chapter is to analyze the behavior of these exchange rates. What determines exchange rates at any time among United States dollars, English pounds, Austrian schillings, French francs, and other money? What effects do these exchange rates have on prices, production, and trade in the various countries? What exchange rates are most favorable to world trade? These are some of the questions that we shall consider. In this chapter we shall assume that governments allow free trading in money in their exchange markets; the effects of government restrictions on dealings in exchange will be considered in the next chapter. Moreover, when we speak of exchanges of national moneys we shall mean exchanges of sight drafts drawn on banks and written in terms of national moneys.

THE DEMAND FOR AND SUPPLY OF NATIONAL MONEYS IN EXCHANGE MARKETS

In a free market the price of each national money in terms of each other national money is determined by supply and

demand conditions that bear on the exchange markets. The exchange rate at any time is set at the level that equalizes the supply of each money and the demand for each money in terms of other moneys. The supply of a nation's money in exchange markets during any period is represented by the *debts* in its balance of payments—its payments to foreigners for goods, services, securities, and so on. The demand for the nation's money is represented by *credits* in its balance of payments—payments to it by foreigners for goods, services, securities, and so on. With these elementary facts in mind we can now analyze exchange rates. For the sake of simplicity we shall use the dollar-sterling rates in most of our examples, but the same principles apply to other cases.

EXCHANGE RATES BETWEEN GOLD STANDARD MONEYS

We shall first analyze exchange rates between two gold standard moneys, not because this is necessarily the most important case at the present time or ever will be again, but because of its relative simplicity and its historical importance. Our example will assume that the countries involved are on full gold standards, that each maintains its monetary unit at a constant value in terms of gold by the free purchase and sale of gold at a fixed price, and that each permits free imports and exports of gold.

As long as two countries meet these conditions, the exchange rate between their moneys must remain relatively stable. It must remain close to the level determined by the *mint parity* or *par of exchange* of the two monetary units, and it cannot vary beyond the *gold-export* and *gold-import* points. By mint parity or par of exchange between two monetary units we mean the ratio of their pure gold content. Thus, when in 1926 the dollar had a pure gold content of 23.22 grains and the pound had a pure gold content of 113 grains, the mint parity between the two was $\frac{113}{23.22}$, or £1 = \$4.8665. In effect, the gold that could be purchased in England with

£1 (113 grains) could be sold to our mints for \$4.8665, and the amount of gold that could be purchased with \$4.8665 at our mints (113 grains) could be exchanged in England for £1. Under these conditions the price of sterling sight drafts could not rise above \$4.8665 by more than the cost of shipping 113 grains of gold from this country to England; it could not rise above the gold-export point. And the price of sterling sight drafts could not fall below \$4.8665 by more than the cost of shipping 113 grains of gold from England to the United States; it could not fall below the gold-import point.

The price of sterling could not rise above the gold-export point because at that point our banks could profitably buy gold here, ship it to England, sell it there for sterling, and sell sterling drafts against the credits built up in this way. Suppose, for example, that the Chase National Bank wished to build up a £100,000 credit in England by the export of gold. At the English purchase price for gold, £1 = 113 grains, it would have to export 11,300,000 grains of gold for this purpose. At our mint price of \$1 = 23.22 grains this gold would cost \$486,650 here. Let us suppose that the total cost of shipping the gold to London, including cooperage, cartage, freight, assaying, interest, and the necessary profit to Chase, was \$2000. The total cost to the bank, including its necessary profit, of securing the £100,000 credit in London would be \$488,650, or \$4.8865 per pound. Thus, Chase and other competing exchange dealers would prevent the price of sterling from rising above the gold-export point, for at this price they could profitably export gold to England and sell the resulting sterling credits. It should be noted, however, that this limitation on the rise of sterling operates only so long as (1) gold is freely sold here at the fixed price of \$1 = 23.22 grains, (2) the United States allows free exports of gold, (3) England allows the free import of gold, and (4) England purchases all the metal offered at a price of £1 = 113 grains. A violation of any one or more of these conditions can allow the dollar cost of acquiring sterling with gold to rise and also allow the dollar price of sterling drafts to rise.

Under the conditions assumed above, the price of sterling could not fall below the gold-import point because at that

point our banks could profitably buy sterling drafts, use the drafts to buy gold in England, ship the gold to this country, and sell the gold for dollars. For example, Chase could buy £100,000 of sterling demand drafts, use them to buy 11,300,000 grains of gold in England, ship the gold to this country, and sell it to the mints for \$486,650. From this amount, however, Chase would have to subtract its shipping costs and its necessary profit, which we may assume to be about \$2000. Thus its net realization on the £100,000 of sight drafts that it bought would be \$484,650, or \$4.8465 per pound. At this price for sterling drafts, the gold-import point, Chase and other competing exchange dealers would find it profitable to buy all these drafts offered for sale and use them for the purpose of importing gold. We must remember, however, that this limitation on the fall of sterling operates only if all the following conditions are fulfilled: (1) Gold is freely sold in England at the fixed price of £1 = 113 grains, (2) England permits free exports of gold, (3) the United States permits the free import of gold, and (4) the United States will purchase all the metal offered at the fixed price of \$1 = 23.22 grains. If any one or more of these conditions is violated, sterling may fall below the former gold-import point. For example, if England restricts gold exports or allows the price of gold to rise there in terms of sterling, our banks may not find it profitable to pay as much as \$4.8465 for sterling sight drafts.

Thus, as long as two moneys have fixed values in terms of gold and both countries permit the free import and export of gold, exchange rates between sight drafts stated in terms of the moneys cannot vary from mint parity by more than the cost of shipping gold between the countries. This principle applies not only to dollars and pounds but also to all other moneys that meet these conditions. As a result, all gold-standard moneys at any time are linked together by a network of virtually stable exchange rates.

It is often contended, as we saw earlier, that this virtual stability of exchange rates is one of the great advantages of international gold standards, for it is supposed to promote international trade and investment by minimizing the risk of fluctuating exchange rates. One can sell abroad, accept in

return a promise of future payment in a foreign gold standard money, and know approximately how many dollars he will get for it. Or he can buy abroad, promising to make future payment in a foreign money, and know within a narrow range how many dollars the foreign money will cost him. Special emphasis is usually placed on the advantages of stable exchange rates for international lending. If an American lends abroad and the foreigner promises to pay principal and interest in terms of foreign money, the American knows the approximate dollar value of these future receipts. If the foreigner promises to pay dollars in the future, he knows the approximate cost of these dollars in terms of his own money. This situation is often contrasted with the uncertainty resulting from widely fluctuating exchange rates.

In the decade immediately preceding World War I only praise was to be heard for the stability of exchange rates under international gold standards. But under the reconstructed gold standards of the late 1920's, and especially during the great depression following 1929, the prestige of gold standards declined. Some people began to ask, "Are we paying too high a price for the stability or inflexibility of exchange rates? In fact, may not the very stability of these rates be injurious to a country?"

To understand this criticism we must recall a point made earlier—that under international gold standards gold tends to have approximately the same purchasing power in all countries. This is the same as saying that price levels in terms of gold tend to be the same in all countries. If the dollar is kept equal to 23.22 grains of gold and the pound is kept at 113 grains, price levels in the United States and England must adjust to such levels relative to each other that \$4.8665 will buy in the United States approximately the same amount of goods and services that £1 will buy in England. Any other relationship between the price levels of different gold standard countries would create a disequilibrium in international balances of payments. This disequilibrium, it was argued, would be remedied by international gold flows and a mutual adjustment of money supplies, money incomes, and price levels. For example, suppose that while exchange rates remained

virtually fixed at £1 = \$4.8665, price levels in England became so high relative to prevailing prices in the United States that £1 would buy there only as much as \$4.50 would buy here. This could occur as the result of an increase of prices in England, a decline of prices in the United States, or a combination of the two. England would become a less favorable place than the United States in which to buy and a more favorable place in which to sell. Thus, England's debits would tend to exceed its credits, and it would lose gold to the United States to balance its international payments. The loss of gold by England would reduce bank reserves there, force its banks to contract credit, and tend to bring about a decline in its money income and prices. The flow of gold into the United States, on the other hand, would tend to increase bank reserves, bank credit, money spendings, and prices in this country. Thus the "automatic gold flow mechanism" would bring prices in the two countries back into an equilibrium relationship with each other so that further gold flows would not occur and £1 would buy approximately as much in England as \$4.8665 would buy in the United States. Exchange rates would again measure the relative purchasing powers of the two moneys in their respective countries. We should emphasize that when exchange rates remain stable the full adjustment must be made through changes in the money supplies, money incomes, and prices of the countries involved.

This mechanism of adjustment has been bitterly criticized even when gold flows are allowed to exert their automatic effects on the money supplies and money incomes of both the gold-losing and the gold-gaining countries. The effects may be especially severe in the gold-losing countries. If wages and other cost elements can be reduced only slowly, the decreased money supply, decreased spendings, and decreased prices may generate widespread unemployment. The gold outflow may be stopped only when the people of the nation are so impoverished by unemployment that they can no longer buy abroad any more than foreigners buy from them. To put this point in its strongest form, let us suppose that the original disequilibrium was caused by a drastic business depression in the United States, which was characterized by widespread

unemployment, seriously reduced national income, falling prices, and reduced imports. With the price of sterling remaining at about \$4.8665 despite the fall of commodity prices here, English exports would suffer, not only because of our reduced purchases there but also because of the diversion of foreign buying from British markets to our own. As long as England elected to keep the pound constant at £1 = \$4.8665 in the exchange markets, English prices would be under powerful pressure to accompany American prices downward, and unemployment in England would probably result. Stable exchange rates can serve as an excellent conductor of business depression from one country to another.

Critics of the mechanism of adjustment under international gold standards also point out that disturbances in the gold-losing countries are likely to be intensified if the gold-gaining countries do not expand their money supplies and money incomes on the basis of their increased gold. The failure of gold-gaining countries to raise their money incomes and prices enhances the amount of deflation that must occur in the gold-losing countries to reestablish an equilibrium in international price relationships. And complete or partial "sterilization" of gold imports by a country may easily occur. For example, the Federal Reserve or the Treasury may deliberately prevent a gold inflow from increasing our bank reserves, or the banks may elect to use the new gold to pay off debts to the Reserve banks or to build up idle excess reserves.

It may be asked, "Why doesn't the gold-losing country or group of countries prevent the gold outflow from lowering its money income and prices by having its central bank purchase securities in the open market and otherwise maintain easy money?" This has been done in some cases. But in many cases it is likely to be impossible, or at least very difficult, for two reasons. In the first place, the maintenance of stable exchange rates in the face of declining commodity prices abroad exerts a strong deflationary pressure on both export and import prices. The country's export prices must fall if it is to compete successfully in world markets, and the prices of imported goods will also fall, thereby forcing down the prices of competing domestic products. In the second place, a coun-

try's attempts to keep its money income and price levels from falling as much as those abroad tend to prolong the gold outflow and may eventually force the country to abandon the gold standard. Only large nations with huge gold stocks can long maintain their internal price levels above those abroad and still keep their money convertible in gold.

In a world in which all the countries maintained relatively stable price levels, avoided business depressions, and co-ordinated their internal monetary policies, the maintenance of stable exchange rates over long periods probably would not entail overly burdensome sacrifices. But this is not the kind of national economic systems that have in the past been linked together by stable exchange rates under international gold standards. Many people believe that the necessary readjustments of international price relationships should be achieved in the future not by maintaining stable exchange rates and forcing adjustments through money supplies, money incomes, and price levels in the various countries, but by adjusting the exchange rates. For example, when price levels in the United States became too low relative to those in England, many economists would advocate readjustment of the dollar-sterling exchange rate so that it would reflect the new relative purchasing power of the two monetary units and would not tend to force English prices to follow ours downward. If while the exchange rate was $\text{£}1 = \$4.8665$ our prices fell to such an extent that $\$4.50$ would buy as much here as $\text{£}1$ would buy in England, a new exchange rate of $\text{£}1 = \$4.50$ could be established. This represents a lowering of the value of the pound in terms of dollars. At this new exchange rate the decline of prices in the United States would not necessarily be communicated to England, for it would be offset by the increased cost of dollars in the exchange market. Though American goods would cost fewer dollars, each dollar would cost more in the exchange market, so that the cost of American goods in terms of foreign money would be unchanged. Moreover, the rise in foreign money relative to sterling would prevent the fall of import prices in England, thereby avoiding downward pressure on the prices of English domestic products that compete with imports.

In summary, many believe that in a world characterized by a slow and painful adaptation of production costs to price changes international adjustments through money incomes and prices in the various countries are too expensive in terms of unemployment and lost production, and that the better method of adjustment is to alter exchange rates so as to reflect changes in the relative purchasing power of national moneys. Some would effect these adjustments of exchange rates by varying the gold contents of the various national monetary units from time to time, thereby changing mint parities. Others would abandon gold standards completely and rely on inconvertible paper standards which would be managed both internally and in the exchange markets.

Purchasing-Power Parity and Exchange Rates Between Gold Standard Moneys

In a later section we shall see that exchange rates between inconvertible paper moneys tend to reflect the relative purchasing power of the moneys in their respective countries. When, for example, neither the dollar nor the pound is convertible in gold and price levels in England and the United States are in such relationship to each other that £1 will purchase in England the same quantity of goods and services that \$4.50 will purchase here, the exchange rate will tend to be about $\text{£}1 = \$4.50$. But if price levels in the two countries are such that £1 will buy in England only as much as \$3.50 will buy here, the exchange rate will tend to be about $\text{£}1 = \$3.50$. This ratio of the purchasing power of two moneys in their respective countries is called *purchasing-power parity*. Whereas mint parity under gold standards measures the relative purchasing power of two moneys for gold, purchasing-power parity measures the relative purchasing powers of two moneys for other goods and services in their respective countries. We shall see that any significant deviation of actual exchange rates from purchasing-power parity is a disturbing influence. Suppose, for example, that both the dollar and the pound are inconvertible in terms of gold and that price levels in the two countries are such that purchasing-power parity

is $\text{£} = \$4.50$. If actual exchange rates were $\text{£}1 = \$4.00$, the pound would be *undervalued* and the dollar *overvalued* in the exchange market. That is, the pound would be too cheap in the exchange market relative to its purchasing power in England, and the dollar would be too expensive relative to its purchasing power in the United States. England would be a good place in which to buy and a poor place in which to sell as compared with the United States. If the actual exchange rate were $\text{£}1 = \$5.00$, the pound would be *overvalued* and the dollar *undervalued* in the exchange market. The United States would be a good place in which to buy and a poor place in which to sell as compared with England. This analysis will be continued in a later section.

We have already seen—though this was stated in other terms—that exchange rates tend to be the same as the purchasing-power parities of money even under the international gold standard. Any significant discrepancy between actual exchange rates and purchasing-power parity indicates a condition of disequilibrium. But since actual exchange rates cannot vary significantly from the mint parity of gold standard money, the adjustment must be made, as we have seen, through adjusting the relative purchasing power of the moneys in their respective countries. Suppose, for example, that mint parity is $\text{£}1 = \$4.8665$ and actual exchange rates are at approximately the same level, but that prices are so high in England relative to the United States that purchasing-power parity is $\text{£}1 = \$4.50$. The value of the pound in the exchange market is too high relative to its internal purchasing power; the value of the dollar is too low in the exchange market relative to its internal purchasing power. This discrepancy will tend to be eliminated by gold flows from England to the United States which will tend to lower the purchasing power of the dollar here and to raise the purchasing power of the pound in England. The adjustment process will continue until the purchasing-power parity of the two moneys has been brought into line with their mint parities. Where the actual exchange rates cannot vary significantly, the adjustment of exchange rates and purchasing-power parity must be made through the price levels of the countries concerned. But it

must be remembered that this process of adjusting purchasing-power parity to mint parity and actual exchange rates may be painful, especially for the country that must lower its price levels.

Changes in Mint Parities Between Gold Standard Moneys

We have seen that actual exchange rates between two gold standard moneys cannot vary from mint parity by more than the cost of shipping gold from one country to the other. It should be evident, however, that both mint parity and exchange rates can be changed by altering the relative gold values of the moneys. No change in mint parity results if the gold values of two moneys are changed in exactly the same proportion. For example, a 40 per cent reduction in the gold content of both the dollar and the pound would leave their mint parity unaltered. But mint parity is changed when the gold value of one remains constant while that of the other is altered, or when the gold content of both is altered but not proportionally. Suppose, for example, that the pound is kept constant at 113 grains and the gold content of the dollar is lowered to 15 grains. The new mint parity would be $\frac{113}{15}$, or £1 = \$7.5333, and actual exchange rates would have to hover around this new level as long as both monetary units were stabilized at these gold values.

The economic effects of such an alteration of mint parities depend upon conditions at the time. If the change merely adjusts mint parities to existing purchasing-power parities the results may be largely beneficial. Suppose that mint parity was formerly £1 = \$4.8665 and prices in the United States relative to prices abroad were so high that \$7.53 would buy here only as much as £1 would buy in England. The former exchange rate clearly overvalued the dollar and could hardly fail to lead gold exports from the United States. A reduction of the value of the dollar in the exchange market to £1 = \$7.53 might adjust its exchange rate to its purchasing-power parity, bring gold exports to an end, and restore equilibrium.

Results are likely to be far different, however, if the de-

valuation of the dollar puts its exchange rate considerably below its purchasing-power parity. Suppose that when mint parity was $\text{£}1 = \$4.8665$, purchasing-power parity was at about the same level. A reduction of mint parity to $\text{£}1 = \$7.53$ would depress the cost of dollars in the exchange market far below their purchasing-power parity. The United States would become a cheap market in which to buy and a poor market in which to sell. Gold would tend to flow to this country, the rise in foreign-exchange rates would tend to raise the prices of both our exports and our imports, and we would exert a deflationary pressure on other countries. This process would continue until the rise of prices here and the decline of prices abroad brought purchasing-power parity into line with the new exchange rate or until we forced other countries to reduce the gold content of their money or to abandon gold standards.

EXCHANGE RATES BETWEEN A GOLD STANDARD MONEY AND AN INCONVERTIBLE PAPER MONEY

Though the exchange rate between two moneys both of which have a fixed value in terms of gold must remain relatively stable, this is not necessarily true of the exchange rate between a gold standard money and an inconvertible paper money. (Exchange rates can vary if either money has a variable gold value. For example, the dollar-sterling rate can vary, even though the dollar remains fixed in terms of gold, if sterling varies in terms of gold. We may say, therefore, that the principles applicable to exchange rates between two inconvertible paper moneys also apply in this case. These principles will be discussed in the following section. Gold can be bought and sold like any other commodity, but its price, like the prices of other commodities, can fluctuate in terms of foreign money. By purchasing gold abroad and giving its money in exchange, a nation tends to increase the supply of its money in exchange markets and to lower its rate in terms of other money, or at least to reduce the rise of its money in

terms of other money. And by selling gold to foreigners in exchange for their money, a nation tends to increase the supply of foreign money available to it and to lower the value of foreign money, or at least reduce its rise, in terms of its own money.

EXCHANGE RATES BETWEEN INCONVERTIBLE PAPER MONEYS

One of the most absurd notions about money that ever gained popularity is the belief that a money which is not convertible into gold must be worthless in exchange markets—that no foreigner will buy a nation's money if he cannot get gold for it. This betrays a serious misunderstanding of the reasons why a nation's money is demanded in exchange markets. Why do English, French, Australians, Brazilians, and other foreigners demand dollars? Primarily because dollars can be used to purchase goods, services, and securities in this country and to retire debts owed to us. Even if we never permitted gold exports, foreigners would still demand dollars with which to buy here wheat, automobiles, computing machines, electrical equipment, machinery, and many other commodities and services. The same is true, of course, of other money. Americans will be willing to pay something for foreign non-gold money, such as sterling, francs, or schillings, as long as this money can be used to purchase goods or services in the countries in which it circulates. Thus a nation's money is demanded in the exchange markets primarily because of its domestic purchasing power for goods, services, and securities. And, in general, the value of a money in the exchange markets varies with its purchasing power in its own country.

To be more specific, inconvertible paper moneys tend to exchange for each other in the exchange markets at rates approximating their purchasing-power parity—their relative purchasing power for goods and services in their respective countries. We can see why this is true by analyzing the nature of a transaction in which dollars are exchanged for pounds.

The owner of dollars has the option of spending them directly for goods and services in this country, or of using them to buy pounds or other foreign money and then spending this money for goods and services abroad. The only equilibrium situation is that in which the dollar will buy approximately the same quantity of goods or services whether spent here or used indirectly to buy in foreign markets. The purchasing power of the dollar in this country depends, of course, on the height of our prices. But its purchasing power in foreign markets depends on (1) the amount of foreign money that a dollar will buy in the exchange market, and (2) the height of commodity prices abroad in terms of foreign money. Only an exchange rate between two moneys that reflects their purchasing-power parity can equalize the purchasing power of a money in its own country and abroad. Any other rate will undervalue one of them in the exchange market and depress its purchasing power in foreign markets below its purchasing power at home, and will overvalue the other money in the exchange market and give it a higher purchasing power in other markets than it has in its own country.

Suppose, for example, that both the pound and the dollar are inconvertible in gold and that price levels in England and the United States are such that £1 will buy in England just as much as \$4.50 will buy here. The purchasing-power parity under these conditions is $\text{£}1 = \$4.50$. If the exchange rate is at this same level, dollars will purchase the same amount of goods and services whether spent in this country or used to buy sterling which is then spent in England. And sterling will have the same purchasing power whether spent in England or exchanged for dollars which are then spent here. Thus, purchasing-power parity is a sort of norm toward which actual exchange rates tend to gravitate.

Why do actual exchange rates between inconvertible moneys tend to approximate purchasing-power parity in unrestricted markets? What tends to prevent the dollar price of sterling from rising far above or from falling far below purchasing-power parity? The answer is that the demand for and supply of money in exchange markets tend to be out of equilibrium at exchange rates that are far removed from

purchasing-power parity. Suppose that while purchasing-power parity is $\text{£}1 = \$4.50$ actual exchange rates become $\text{£}1 = \$4.75$. This would overvalue the pound and undervalue the dollar in the exchange market relative to their purchasing power in their respective countries. Because of the high price of sterling England would become a more expensive place in which to buy and a better market in which to sell; the amount of sterling demanded would be reduced and the amount offered for sale would be increased. The United States, on the other hand, would be a cheaper place in which to buy and a less favorable market in which to sell because of the low price of dollars; the amount of dollars demanded would be increased, and the amount supplied would be decreased. Thus at any exchange rate that valued sterling much above its purchasing-power parity of $\text{£}1 = \$4.50$, the supply of sterling would probably exceed the demand for it; the demand for dollars would exceed the supply of them.

Any exchange rate that valued sterling much below the purchasing-power parity level would probably be a disequilibrium rate, for the demand for sterling would tend to exceed its supply. At an actual exchange rate of $\text{£}1 = \$4.25$ and with the purchasing-power parity at $\text{£}1 = \$4.50$, England would become a cheaper market in which to buy and a less favorable market in which to sell; the amount of sterling demanded would be increased and the amount of it supplied would be decreased. With the higher value of dollars in the exchange market the United States would become a more expensive market in which to buy and a more favorable market in which to sell; this would decrease the quantity of dollars demanded and increase the quantity of them supplied. Thus at any exchange rate that valued sterling much below $\text{£}1 = \$4.50$ while purchasing power parity remained at that level, the demand for sterling would tend to exceed the supply.

It will be noted that in our explanation of the tendency of actual exchange rates to be forced toward purchasing-power parity we have emphasized the role played by exports and imports of goods and services. If the value of a nation's money in the exchange market rises above its purchasing-power parity, the nation's exports tend to fall below its imports; the

lative sales of the money. And when the value of a money falls significantly below its purchasing-power parity, it tends to be raised again by increased foreign purchases of the nation's goods and services, by decreased purchases abroad by the nation, and by speculative purchases of the money. These equilibrating forces are powerful and often succeed in maintaining actual exchange rates near what we have called the "normal level." But we also know that on many occasions exchange rates have deviated widely from purchasing-power parity and that these deviations have sometimes persisted for periods of considerable length. What forces are responsible for these deviations? We shall postpone until the following chapter our consideration of one of these forces—government restrictions on private dealings in exchange and government control of exchange rates. But even when individuals and business firms are free to buy and sell money as they wish, there are two principal forces that can cause actual exchange rates to deviate widely from purchasing-power parity: (1) government obstructions to the free international movement of goods and services, and (2) international capital movements, especially erratic movements based on fear or on the hope of speculative gains.

Government Obstructions to the Free International Movement of Goods and Services

Government obstructions to the free international movement of goods and services are capable of producing large and persistent deviations of actual exchange rates from purchasing-power parity. Suppose, for example, that the United States restricts imports by means of high tariffs, import embargoes, import quotas, or import licensing. The effect of such actions is to limit the number of dollars offered in the exchange market and to keep the value of the dollar in this market higher than it would be if imports were unrestricted. The result is similar if other countries limit their exports to us by means of export tariffs or quotas, or in other ways, for they thereby limit American purchases abroad.

On the other hand, import restrictions by other countries

ample, that the United States lends abroad at a stable rate of \$1 billion a year. These loans increase the volume of dollars in the exchange markets and tend to depress the value of the dollar there. But if the rate of lending is stable and the purchase of goods and services from this country is virtually free of restrictions, a relatively small decline of the dollar in the exchange markets is likely to induce enough of an increase in our exports to prevent the dollar from falling very far below purchasing-power parity.

The results are far different, however, when capital movements are highly erratic, especially when they are based on fear or on the hope of large speculative profits. Suppose that exchange dealings are unrestricted and that for some reason—imminent war, fear of socialism, or fear of inflation—people come to believe that the British pound may depreciate below its current price of \$4.02. A “flight of capital” from Britain may occur. Foreigners may rush to sell their sterling deposits, their short-term loans in Britain, and even their long-term securities that are written in terms of sterling. The British themselves may join the rush and offer large amounts of sterling in exchange for foreign money, such as dollars, francs, or marks. Such flights of capital from a country can depress the value of its money in exchange markets far below the purchasing-power parity. On the other hand, an expectation that a nation’s money may appreciate in exchange markets can cause a capital flight to the country. Suppose, for example, that people expect the British pound to appreciate. They may rush to buy sterling deposits, to make short-term loans in England, and even to buy long-term securities that are written in terms of sterling. This demand for sterling may drive its value in exchange markets far above the prevailing purchasing-power parity.

Erratic capital movements of the types described above can seriously disturb international monetary relationships. A capital flight from a nation that is on a gold standard can deplete its gold reserves, deflate its domestic economy, and even drive it off its gold standard. The flight of capital from a nation on an inconvertible paper standard can depress the value of its money in exchange markets far below the pur-

chasing-power parity and raise the domestic prices of both its imports and its exports. Capital flights to a nation can be embarrassing as well. If the nation is on a gold standard the inflow of funds may add to its gold holdings and tend toward excessively easy money for a period, a situation that may be reversed when the funds are withdrawn. If the nation is on an inconvertible paper standard the capital inflow can raise the value of its money in exchange markets, thereby discouraging its exports, encouraging its imports, and tending toward deflation within it.

A country can hardly afford to permit the value of its money to fluctuate widely in exchange markets in response to the manipulations of speculators and the vacillating attitudes of other buyers and sellers of exchange when these fluctuations have such an important effect on the prices of its imports and exports and on its ability to buy and sell in world markets. It is now generally expected that in the future countries on both gold and inconvertible paper standards will exercise a high degree of control over capital movements, especially when they are erratic and speculative, in order to prevent them from creating or aggravating international monetary disturbances. We can only hope that these government controls will not interfere with the orderly flow of both long-term and short-term capital among nations.

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Government Intervention in Exchange Markets

THE PRECEDING CHAPTERS DESCRIBED THE PROCESSES OF international payments and the behavior of exchange rates when individuals and business firms are free to buy and sell national money as they wish and when exchange rates are determined by the unrestricted activities of these individuals and business firms as they attempt to maximize their own advantages. But it must not be assumed that governments have no influence on the behavior of exchange rates even when they impose no restrictions on private dealings in exchange. In setting up a gold standard and defining the gold value of its monetary unit, a nation sets the par of exchange of its money if other moneys have fixed gold values. The domestic monetary policy affects exchange in several ways. A liberal credit policy tends to increase the demand for foreign money both by increasing the nation's money income and by lowering its interest rates relative to those in foreign markets. This tends to increase its imports and decrease its exports of goods and services, and to induce capital exports. On the other hand, a restrictive monetary policy tends to lower the national income, to raise interest rates, and to decrease the demand for foreign money by reducing imports, increasing exports, and inducing capital inflows. Tariffs and other restrictions on imports tend to decrease the demand for foreign money, and restrictions on exports tend to reduce the foreign

demand for the nation's money. In these and many other ways governments affect the operations of exchange markets even when they do not restrict private dealings.

But during much of the period since 1914 governments have intervened directly in exchange markets, restricting private dealing, prohibiting purchases and sales at rates other than those officially proclaimed, and making large purchases and sales on government or central bank account for the purpose of regulating exchange rates. This chapter will deal with these direct government interventions in exchange markets.

GOVERNMENT PURCHASES AND SALES IN EXCHANGE MARKETS

Even without restricting exchange dealings by private firms and individuals, governments or central banks can influence exchange rates through their purchases and sales of money in the exchange markets. These operations are no more complex in principle than the actions of a government agency in its attempt to control the price of wheat through purchases and sales in the open market. If a central bank or government wishes to support or raise the price of foreign money (that is, to prevent a rise or induce a fall of its own money in the exchange market) it enters the market as a purchaser of foreign exchange, offering its own money in payment. If, on the other hand, it wishes to lower the price of foreign money (to raise the price of its own money in the exchange market) it sells foreign money in exchange for its own money.

Central bank and government purchases and sales of money in exchange markets are by no means new. Most central banks have for a long time purchased and sold foreign exchange for the purpose of influencing the behavior of exchange rates and the volume and direction of gold flows. For example, our Reserve banks have at times purchased sterling and other foreign bills to prevent their price from falling to the gold-import point, thereby preventing or reducing gold flows to this country. At other times the Reserve banks have sold sterling and other foreign bills to prevent foreign-exchange rates from

rising to the gold-export point, thereby preventing or reducing gold outflows from this country. Under inconvertible paper standards central banks have often bought and sold money in exchange markets in order to secure a desired behavior of exchange rates.

When their purchases and sales in exchange markets became very extensive in the 1930's several governments established large specialized institutions for this purpose. These were given various names, such as exchange stabilization funds, exchange equalization funds, and exchange stabilization accounts. The British Exchange Equalization Account

TABLE 37. THE SIZE OF EXCHANGE STABILIZATION FUNDS, DECEMBER, 1936¹
(IN MILLIONS)

	In the Nation's Monetary Units	In Dollars at the Current Rate of Exchange
United States	\$ 2,000	\$2000
Great Britain	£ 375	1840
France	Fr. 10,000	467
Netherlands	Gdr. 300	164
Switzerland	Sw. Fr. 100	23

was established in 1932, the United States Exchange Stabilization Fund in 1934, and the stabilization funds of France, Switzerland, and the Netherlands before the end of 1936. The size of these funds before World War II is indicated in Table 37.

To perform its functions successfully, an exchange stabilization fund must be able to command (1) a sufficient supply of foreign money and (2) a sufficient supply of its own country's money. It requires a supply of foreign money which it can sell in order to prevent an unwanted rise in the price of that money—an unwanted decline of the value of its own money in the exchange markets. Its supply of foreign money may be in any one or more of several forms: deposits in foreign banks, including foreign central banks; foreign securities which can be sold quickly in foreign markets; an ability to

¹ G. Griffith Johnson, Jr., *The Treasury and Monetary Policy, 1933-1938*, Harvard University Press, Cambridge, 1939, p. 120.

borrow quickly in foreign markets; or gold holdings which can be sold abroad for foreign money. We must emphasize that the ability of a stabilization fund to halt a rise in foreign-exchange rates (to halt a decline of its own money in the exchange markets) depends on the amount of foreign money that it can offer for sale.

A stabilization fund requires an adequate supply of its own money with which to buy foreign money in order to prevent an unwanted fall of foreign-exchange rates—an unwanted rise of its own money in the exchange markets. A fund's supply of its own money may be in any one or more of several forms: deposits with its central bank or with commercial banks in its own country; an ability to borrow money quickly in its own country by selling its own or government securities; or gold holdings which can be sold for its own money. A fund's ability to prevent a fall or to induce a rise in foreign-exchange rates depends on the amount of its own money that it can offer in the exchange markets.

We have seen that the function of a stabilization fund is to regulate exchange rates by purchasing and selling money in exchange markets. But what are the objectives of these funds? What sort of behavior in exchange rates do they strive for? No simple answer can be given to these questions. The funds were created in a period of widespread monetary disturbances, there was no international agreement as to what constituted appropriate behavior for exchange rates, and objectives were different at different times. Many people expected that the funds would be used only to iron out temporary fluctuations, the longer-term trend of exchange rates being determined by the demand for and supply of money on the part of private individuals and business firms. According to this principle, exchange rates would be allowed "to find their own level" over a period of time, but stabilization funds would prevent capital movements, speculation, and other temporary factors from producing wide deviations from this level. In most cases, however, these funds adopted more ambitious objectives and attempted to regulate the trends of exchange rates over a considerable period of time. They tried to keep these rates either considerably above or considerably below the levels

that would have prevailed in the absence of the fund's purchases and sales.

When they attempted to regulate the trends as well as the temporary fluctuations, stabilization funds sometimes tried to keep foreign-exchange rates above the level that would have been established through supply and demand by private individuals and business firms; that is, they tried to depress the value of their own money in the exchange markets. This policy is understandable, if not above reproach, in a period of widespread unemployment and a shrinking world demand for goods and services. By reducing the cost of its money in the exchange markets a nation may (1) increase its exports and even induce a rise in their prices in terms of its own money, (2) increase the cost of imports in terms of its own money, thereby protecting competing home industries, and (3) secure an excess of exports over imports and use the excess credits in its balance of payments to accumulate foreign money or gold which it can use to expand its internal money supply or to meet future drains. In short, the country might reduce its own unemployment by taking over a larger part of the world's export market and reserving a larger part of its home market for its own producers. Such policies are often called nationalistic schemes to encourage domestic economic recovery by exporting unemployment—"beggar-my-neighbor" recovery policies. They may increase employment in one country by reducing it in others.

This fact emphasizes the importance of cooperation among national stabilization funds. An exchange rate is, of course, a relation between two national moneys; and both countries, as well as the rest of the world, have an interest in the level of exchange rates established. Only confusion and ill feeling result if two national stabilization funds try to establish different exchange rates between two moneys. Suppose, for example, that our stabilization fund decided to encourage recovery here by giving the dollar a relatively low value in terms of sterling, such as £1 = \$5.00. At the same time the British Exchange Equalization Account might try to establish a much lower exchange rate for sterling, such as £1 = \$4.00, in order to encourage British exports. In the absence of

cooperation between the two funds, our fund might buy sterling feverishly in order to push the price of the pound up to \$5.00, and the British fund might with equal fervor sell sterling in an attempt to lower its price to \$4.00. It is obvious that both efforts cannot be successful. This example brings out three important facts. (1) Countries may disagree as to the appropriate levels of exchange rates among their moneys. (2) If two national funds try to establish different levels of exchange rates between their moneys, one or both must fail to achieve its purpose. (3) If governments are to regulate exchange rates through stabilization funds they should cooperate fully in determining the appropriate levels of the rates and in carrying out their operations to achieve stability at the chosen levels.

Stabilization funds cooperated to some extent from the beginning, though their cooperation was informal, sporadic, and without a basic agreement on general principles. The Tripartite Agreement in 1936 among the United States, Great Britain, and France represented an improvement in international cooperation relative to exchange rates, but it still left much to be desired. A satisfactory degree of cooperation in this field seems impossible without the presence of some international organization like the International Monetary Fund, which will be discussed in the next chapter.

EXCHANGE RESTRICTIONS

In all the discussion up to this point we have dealt with the situation in which private individuals and business firms, including banks, are permitted to deal freely in exchange markets—to buy and sell money when they wish, at whatever prices they wish, and for any purpose. These conditions are not necessarily violated by the use of an exchange stabilization fund; private individuals and firms may still be permitted to buy and sell money freely, even though the fund influences or in some cases dominates the behavior of exchange rates through its purchases and sales. But during much of the period since 1914 many governments have placed legal re-

strictions on dealings by private individuals and firms in exchange markets; they have limited the purposes for which they might buy or sell exchange, the amount that they might buy or sell, and the prices at which exchange transactions might be carried on. These limitations on private transactions in exchange are usually called "exchange restrictions." Exchange restrictions were widely employed during World War I, were relaxed only slowly during the disturbed period following that war, were reintroduced widely during the great depression, were used by every belligerent and most non-belligerents during World War II, and began to be relaxed only very slowly after the end of hostilities. In fact, some countries will probably maintain such restrictions in at least a mild form for many years. We shall see later that one of the primary functions of the International Monetary Fund, the World Bank, and the International Trade Organization is to secure a sufficient relaxation of exchange restrictions to permit free international payments for goods and services.

Though we shall discuss separately the use of exchange restrictions in wartime and peacetime, it is important to remember that the two are closely related. The techniques, administrative organizations, and policies developed in wartime have exerted an unmistakable effect on peacetime exchange restrictions. And the effectiveness of exchange restrictions during World War II owed much to the experience gained during the great depression.

Wartime Exchange Restrictions

Wartime exchange restrictions have varied considerably in detail from one country to another; in general they were much more rigid during World War II than in World War I. We shall therefore describe a "typical" set of exchange restrictions during the recent war. The essential parts of such a wartime program are the following: (1) The government fixes the value of its money in terms of all other money and prohibits transactions at any other exchange rate. The British, for example, pegged the dollar value of the pound at \$4.03 and decreed that purchases and sales should be made only at that rate.

(2) Anyone in the country receiving payments in foreign money must surrender it to the government or to one of its approved agencies at the official exchange rate. In many cases nationals are required to sell to the government all their holdings of foreign money and all their foreign securities that can be sold abroad for foreign money. By these measures a government can mobilize claims against foreign countries so that they can be used in the national interest. (3) No one may make payments abroad, either by buying foreign exchange or by paying out claims against his country's own money, except as permitted by the exchange control authorities. Transfers of capital abroad are usually prohibited, travel expenditures abroad are strictly limited, interest payments and debt service to foreigners are closely regulated, and no one is permitted to purchase abroad any good or service that does not contribute either directly or indirectly to the prosecution of the war.

These wartime exchange controls have several purposes. (1) They make it more difficult for the enemy to secure a supply of the nation's money or of foreign money with which to purchase supplies, finance espionage, or carry on other activities inimical to the nation. (2) They mobilize and conserve the nation's claims against other countries, thereby enabling it to utilize its limited purchasing power abroad to buy those things that will contribute most to the winning of the war. Its residents are not allowed to squander foreign exchange in buying non-essentials. (3) By preventing foreign-exchange rates from rising, they hold down the cost of imports in terms of the nation's money, thereby decreasing the financial cost of the war and facilitating the maintenance of price ceilings. If Britain had not imposed exchange control, the prices of many foreign moneys would have risen markedly in terms of sterling. This would have increased the government's fiscal problem by raising the sterling cost of imported war materials. The rise in import prices in terms of sterling would also have greatly intensified the problem of holding down the prices of civilian goods. (4) They help to maintain "confidence" in the nation's money by preventing its decline in exchange markets. If the money were allowed to fall in ex-

change markets people might believe that this indicated a future decline in its purchasing power at home and might hasten to spend their money more rapidly, thereby intensifying inflationary pressures. And (5) they help to maintain morale in the nation by assuring that wealthy persons and business firms cannot transfer their funds abroad to escape taxes or war losses.

At the end of World War II all the belligerents and many non-belligerents had tight exchange restrictions in effect. In the next chapter we shall study the problems involved in relaxing these restrictions in order to revive world trade.

Peacetime Exchange Restrictions

Wartime exchange restrictions are relatively easy to outline briefly. The exchange problems faced by all belligerent nations are somewhat similar, all have comparable objectives, and all can count on public support of a thoroughgoing exchange control program. Peacetime exchange restriction programs are much more difficult to summarize. Some have been imposed while the country was in the throes of inflation; others have been undertaken in the midst of deflation. Some have been used to maintain at least a semblance of the gold standard; others have been used with inconvertible paper standards. Some have been relatively mild, restricting only a few types of international payments, such as those used to transfer capital abroad; others have been thoroughgoing, fixing exchange rates and centralizing all exchange dealings in the government or central bank.

Most peacetime exchange restriction programs have one common characteristic: They attempt to maintain the value of the nation's money in exchange markets at a higher level than would result if private dealings in exchange were unrestricted, and to prevent or at least minimize the loss of gold when a nation is on a gold standard. The principal method of obtaining these results is restriction of the demand for foreign exchange—limitations on payments that can be made abroad. These limitations are applied to one or more of the following types of outpayments: (1) capital exports—withdrawals of

deposits or short-term loans from the country by foreigners, purchases of deposits abroad by people in the country, purchases of securities from foreigners, and so on; (2) interest and dividend payments to foreigners; and (3) payments for goods and services purchased abroad.

Many exchange restrictions were initially imposed to prevent a flight of capital induced by fear that the nation's money would depreciate in the exchange markets. For example, when the great Creditanstalt Bank failed in Austria in 1931 there was a large volume of foreign deposits in that nation's banks and a sizable volume of foreign short-term loans in its money markets. Fearing that the schilling would become inconvertible in gold and would depreciate, foreign depositors and lenders to Austria quickly began an almost panicky withdrawal of their funds. Even Austrians, expecting a rise in foreign-exchange rates, hastened to buy foreign money, thereby increasing the country's gold losses and hastening its abandonment of the gold standard. This great loss of gold could have been prevented or at least postponed by a prompt restriction of capital exports from Austria. Such action was not taken, however, until the country had abandoned gold and the continued flight of capital threatened to depress greatly the value of the schilling in exchange markets. The Austrian government at that point imposed severe restrictions on the purchase of foreign exchange for the purpose of transferring capital funds abroad, thereby decreasing the demand for it and lowering its price in terms of schillings. Many other countries restricted capital exports during the great depression, some of them to maintain a semblance of the gold standard, others to prevent a depreciation of their inconvertible paper money in the exchange markets.

In restricting capital exports nations have often tried to distinguish between (1) abnormal capital movements induced by fear or by hope for speculative profits from exchange rate fluctuations and (2) normal short-term and long-term movements for the purpose of financing international trade and investment. They have professed a desire to encourage normal movements while preventing abnormal ones from disturbing exchange rates and gold flows. The distinction is useful; many

admit that exchange rates and gold flows should not be ruled by the vagaries of exchange speculators and the fears of international short-term lenders. Nevertheless, two consequences follow a nation's imposition of restrictions on capital exports. In the first place, the restrictions cannot be fully enforced without a large organization and strict supervision of all exchange dealings, for funds can be withdrawn from a country in many ways. And in the second place, it is difficult to induce a new flow of capital into the country as long as foreign funds are frozen there. Foreign lenders fear that any new loans will likewise be frozen.

Exchange restrictions have also been imposed on outpayments for imported goods and services when a nation's purchases abroad tended to be so high relative to its sales abroad that it would lose gold or its money would depreciate in exchange markets. For example, Argentina in 1931 restricted payments for imports when the great depression in other countries markedly decreased the value of its own exports. Instead of attempting to increase exports by allowing the value of its money to decline in exchange markets or by lowering its internal price level, Argentina elected to restrict the volume of its imports by rationing the amount of foreign exchange available for that purpose. Within a short period it had a complete and strict exchange control system. (1) The government fixed the exchange rates applicable to all transactions, these rates valuing its own money considerably above the level that would have been fixed in an unrestricted market. (2) Exchange dealings were centralized in the government and its authorized agencies. (3) All recipients of payments from abroad were required to sell them to the exchange authorities at the fixed official rates. (4) No payments could be made abroad for any purpose without the express permission of the exchange authorities.

What did nations hope to gain by restricting payments to other countries? The objective was fairly clear when a nation was trying to maintain at least the fiction that its money was still convertible into gold. A large excess of outpayments drained gold from the country, depleted central bank reserves, drained both deposits and reserves from commercial banks,

and exerted a drastic deflationary effect on the nation's domestic economy comparable to that resulting from a widespread domestic run on the banking system. A country would take almost any action that would free it from these deflationary pressures. But why did countries not abandon gold standards as soon as it became evident that gold outflows would reach unbearable proportions, and then allow foreign-exchange rates to rise as much as was required to restore an equilibrium of supply and demand in exchange markets? And why did the countries that had already abandoned gold not allow the value of their money in the exchange market to fall to the level that would equate supply and demand without any restrictions? Some countries opposed such a depreciation of their money in exchange markets for various reasons. (1) In some of them, notably Germany and Austria, exchange depreciation was popularly associated with inflation of internal price levels. The people of those countries would have viewed a fall of their money in exchange markets as a forerunner of disastrous price rises at home and would have penalized any government that permitted it to happen. In 1931 some of these people were still less frightened by deflation than by the possibility of inflation. They did not yet realize fully the disastrous effects of a prolonged deflation, and the British had not yet demonstrated that an inconvertible paper money can be managed successfully. (2) In countries with large external debts stated in terms of foreign money a rise in foreign-exchange rates would have increased the costs, in terms of the nation's own money, of meeting interest and principal payments to foreigners. (3) A rise in foreign-exchange rates would have tended to increase the cost of imports, including raw materials for industry and many items entering into the cost of living. (4) The countries could not know in 1931 that world price levels would continue to fall and that a decline of a nation's money in the exchange market would help to insulate it from deflation in other countries.

Whatever may have been the advantage to a nation of maintaining the value of its money in exchange markets at artificially high levels through exchange restrictions, three facts became quickly apparent. (1) The job of holding foreign-

exchange rates below the levels to which they would be raised by unrestricted demand and supply was extremely difficult, just as is the enforcement of any other type of price ceiling. Black markets became common, and exchange control authorities were rarely able to match the ingenuity of black market dealers. (2) The maintenance of a nation's money at an artificially high value in the exchange markets tended to increase the cost of its exports in terms of foreign money, to discourage its exports, and to depress its export industries. At the same time the relative cheapness of buying abroad induced a large demand for foreign exchange. Thus the overvaluation of the nation's money in exchange markets accentuated the shortage of foreign exchange. Faced with a demand for foreign exchange far in excess of its supply, exchange control authorities had to institute an exchange rationing system. (3) In rationing highly scarce foreign exchange, each government faced difficult problems of policy. For what purposes should it be allocated—debt payment, foreign travel, or import of goods and services? What imported goods and services should be given preference? Should importers be allowed to buy where they wished, or should the government influence the direction of trade by its policies in allocating foreign exchange? To what importers should exchange be made available? We shall consider these questions in more detail in a later paragraph.

Multiple Exchange Rates

When dealings in exchange markets are unrestricted and a money can be used for any purpose it can have but one value in the exchange markets at any given time. For example, when there are no restrictions on the use of dollars and no restrictions on their purchase and sale, a dollar can have only one value in exchange markets at any moment. But as soon as restrictions are imposed on exchange dealings there may be two or more prices for a money at any time; multiple exchange rates become possible. In some cases these multiple rates originated with the rise of black markets; in addition to the official rates fixed by the exchange control authorities there

was a black market rate. The black market prices of foreign money were always higher than the official prices. For example, in 1938 the official peso-dollar rate established by the Chilean government was about 19.3 pesos = \$1, but the black market rate there might have been about 25 pesos = \$1, a 30 per cent higher price for dollars. At first the authorities were opposed to all black market operations in exchange and sought to suppress them. Later, however, they began to see advantages in these dealings, especially when the foreign exchange sold in these markets resulted from the export of goods that could not be sold abroad profitably at the official exchange rates. A Chilean exporter might not be able to export profitably if he had to sell the resulting dollars at the official price of 19.3 pesos, but he might compete very favorably in world markets if he could sell them at the black market price of 25 pesos. In some cases, therefore, exchange authorities winked at certain exchange transactions in the black markets, for they enabled the country to supplement its exports by an "informal depreciation" of its money.

At a later stage many countries deliberately established two or more values for their money in exchange markets. One was the "official" rate, which placed a relatively high value on the nation's money; the other rates were lower and were known by various names such as "free rates," "export rates," or "special export rates." For example, from 1937 to the outbreak of World War II Chile maintained an official rate of about 19.3 pesos to the dollar whereas the "export rate" was 25 pesos to the dollar. By shifting transactions between these two markets the Chilean government could exercise a high degree of control over the types, amounts, and peso prices of both exports and imports. If a given commodity could be exported profitably even though receipts of foreign money were sold at the relatively low official price, its exporters were forced to sell their foreign money to the exchange control authority at the official price. If, however, the control authority wished to promote the export of some commodity, exporters of it were permitted to sell some or all of their receipts of foreign money at the higher "export rate." Thus, exchange restriction and multiple exchange rates became an

integral part of the nation's general export policy. They were also used to regulate the types, amounts, and costs of imports. To hold down the domestic price of an imported good the exchange control authority would sell its importers a liberal amount of foreign exchange at the relatively low official rate. If, however, the control authority wished to discourage the import of some commodity and did not object to a rise in its price, its importers had to purchase the foreign exchange with which to pay for it at the higher "export rate." In a similar way the authorities regulated the source of the country's imports. Importers buying in approved countries were permitted to buy foreign exchange at the relatively low official rate, but those buying elsewhere were forced to pay the higher "export rates." In this way countries with exchange restrictions used multiple exchange rates to discriminate against some exporting countries and to favor others.

Multiple exchange rates reached their most complex development in Germany. The official value of the reichsmark remained unchanged at 40 cents from 1934 to the end of World War II, but most of Germany's international transactions were effected with many kinds of marks, perhaps as many as sixty, whose values in the exchange markets ranged down to a few cents. By maintaining a multiplicity of exchange rates and shifting transactions from one category to another, Germany discriminated against the exports of some countries, encouraged imports from others, extracted a high price for some of its own exports, promoted its exports of other goods, encouraged some types of imports and discouraged other types, and regulated domestic prices of both imports and exports. Multiple exchange rates may be a useful device for nationalistic economic planning, but they are hardly conducive to a maximum amount of world trade.

Exchange Allocation Policies and Bilateral Balancing

As soon as a country fixes foreign-exchange rates at such a low level that the demand for foreign exchange far exceeds its supply, the exchange control authorities must face the

difficult problem of formulating an exchange rationing or allocation policy. It has to answer such questions as these: (1) For what kinds of foreign payments is the limited supply of foreign exchange to be allocated—interest payments, debt retirement, lending abroad, imports of goods and services, or foreign travel? What kinds of imports and exports should be given preference? (2) In allocating exchange for foreign payments, should all foreign countries be treated alike or should some be treated more favorably than others? (3) How is the limited supply of foreign money to be allocated among the various applicants?

Exchange control authorities could have followed an exchange rationing policy based on some historical pattern of outpayments, allowing a pro rata share of the available exchange for each purpose. In fact, however, they classified the various types of payments to foreigners and treated some more liberally than others. As a general rule, they tended to limit outpayments for interest and debt retirement in order to conserve their ability to buy goods and services abroad. They also classified the various types of goods and services and gave some types of imports preferential treatment. It is easy to understand why they tended to allocate exchange rather freely for the import of essential raw materials, consumer "necessities," and military supplies and refused to allocate it for "non-essentials." But in most cases the exchange allocation policy became a method of "protecting home industry." Imports that would compete with the output of politically powerful domestic industries were discriminated against, whereas permits to import and pay for things that were non-competitive could be secured more easily.

Exchange allocation was also used to discriminate against some foreign countries and to favor others, thereby becoming an instrument of national political and economic policy. Exchange was allocated rather freely for the payment of interest and debt to some countries, but it was completely denied or allocated in only niggardly amounts for the same kinds of payments to others. Importers buying a given commodity from "approved" countries were allotted foreign exchange,

but those wishing to buy elsewhere were denied it. For example, an Argentine railroad might receive an allocation of exchange to pay for British steel rails but not for American rails. This discriminatory treatment of foreign countries had many objectives. Some countries, notably Germany, used it for political and military purposes. Payments to countries evidencing "the proper attitude" were permitted on a liberal scale, but other countries failed to receive interest and debt payments and suffered a loss of exports to Germany. Discrimination was also used to force a bilateral balancing of trade. In permitting payments for imports a country tended to favor the countries that purchased large amounts of its exports. Thus Argentina favored Britain over the United States because the British were good customers for its exports. Exchange allocation policies became a weapon in bilateral trade bargaining. The exchange control authority of country A would allocate exchange for purchases in country B only if B would grant favorable treatment to exports from A. This of course meant discrimination against the exports of other countries. The advantages of multilateral trade were sacrificed and exchange restrictions were used to supplement other nationalistic economic policies.

Exchange control authorities also faced the difficult problem of determining which individuals and firms should receive allocations of the scarce supply of foreign exchange. This was a valuable privilege. Favored importers were in a position to reap high profits, for they could buy goods abroad at the prices prevailing there and then sell them in the home market at much higher prices because of the limitations on imports. In some cases these excessive importers' profits were scaled down by domestic price control or special taxes, but in other cases they were not. It was only to be expected, therefore, that the valuable privilege of importing should command a price and that some exchange control authorities should become corrupt.

As the depression deepened and exchange restrictions became more widespread and more severe, countries sought methods of expanding international trade. Various interesting

techniques were used; among them were outright barter transactions and clearing agreements. We cannot discuss them here. We can only point out that they were used primarily for bilateral trade balancing and that they did not by any means offer the advantages to be derived from a system of relatively free multilateral payments and multilateral trade. They were merely a desperate attempt to loosen slightly the stranglehold of disordered exchange markets and exchange restrictions.

SUMMARY

The purpose of this chapter is not to condemn all government intervention in exchange markets. Deliberate management of international monetary relationships is as essential as domestic monetary management. In fact, the two types of management must be properly integrated if either is to succeed. Exchange stabilization funds can serve a highly useful function if their policies and operations are determined on sound principles and through international cooperation. Even exchange restrictions may be useful at times, especially in preventing abnormal capital movements from disturbing monetary relationships. What is to be avoided is not necessarily government intervention as such, but rather inappropriate policies, especially those that are shortsighted and directed to narrowly nationalistic purposes regardless of their effects on other countries.

We must also emphasize the fact that disorders in exchange markets cannot be divorced from domestic disorders. It seems clear that inappropriate policies in exchange markets tended to aggravate the great depression. But to a marked extent the disorders were caused by economic disturbances within the various countries. For example, our sudden cessation of lending abroad and the rapid decline of our production, income, and imports contributed greatly to exchange disorders throughout the world following 1929. A wise policy in exchange markets is essential to world prosperity, but it must be supplemented by wise international trade policies and equally wise domestic economic policies if it is to succeed.

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The Bretton Woods Institutions

AT BRETTON WOODS, NEW HAMPSHIRE, IN JULY, 1944, EXPERTS from 44 nations agreed on plans for two important new international financial institutions—the International Monetary Fund and the International Bank for Reconstruction and Development. The latter is popularly known as the World Bank. The International Monetary Fund has several general purposes: to provide a mechanism for continuous international cooperation on monetary matters, to provide an orderly method of setting exchange rates and of changing them when alteration becomes appropriate, to aid member countries in stabilizing the value of their money at appropriate levels in exchange markets, and to expedite the relaxation of exchange restrictions. The functions of the International Bank for Reconstruction and Development are supplementary to those of the Fund. They are to facilitate the international flow of long-term investment funds for the purpose of reconstructing war-torn economies, of developing industrially backward nations, and of helping member countries meet longer-term balance of payments problems while reconstructing and developing their economies. With unexpected willingness and dispatch, most of the countries approved the experts' plans, and both of the new institutions were organized and began operations before the end of 1946. By early 1947 about 44 countries, including virtually all the major nations except Russia and the former enemy countries, had joined the two institutions, and other members will probably be added in the

future. For the first time in history there is a truly world-wide organization for the promotion of international monetary cooperation.

REASONS FOR ESTABLISHING THE BRETTON WOODS INSTITUTIONS

It seems almost certain that the countries would not have agreed so readily to the formation of the International Monetary Fund and the World Bank if they had not learned about the shortcomings of the interwar system by painful experience. These shortcomings which the new institutions are meant to remedy are as follows:

1. The lack of a formal organization to promote continuous international cooperation on monetary matters. International monetary cooperation was not entirely lacking during 1918–39. Central bank officials often conferred with each other, sometimes informally and sometimes through the Bank for International Settlements. In determining its credit policies a central bank frequently took into account the effect on other countries. Central banks and governments sometimes lent to other countries to assist in monetary stabilization. It was not unusual for the officials of national exchange stabilization funds to confer with each other and to cooperate, especially after the Tripartite Agreement in 1936. Yet these beginnings of international monetary cooperation were far from adequate. They were sporadic, they were not based soundly on international agreement as to objectives, and the principle of national sovereignty in the field of monetary policy was stubbornly defended. It is clear that much can be accomplished through a formal international organization which will bring about continuous consultation, a continuous exchange of information, and a higher degree of understanding among the member nations.

2. Inappropriate behavior of exchange rates. We have seen that economic stability and prosperity suffered greatly in the interwar period because of inappropriate exchange rates. Both after World War I and during the great depression many

nations tried to establish and maintain exchange rates that either undervalued or overvalued their money, and wide fluctuations accompanied international flights of capital. Developments during World War II indicated a probable repetition of these disturbances. Nations experienced widely differing degrees of inflation during the war, there was good reason to believe that inflation would continue in some after the war ended, and the war greatly changed the relative abilities of countries to import and export. In the absence of international cooperation in fixing and adjusting exchange rates there was every reason to expect large and protracted fluctuations in this field.

3. Exchange restrictions. We have already noted that immediately after World War I and even more during the depression, exchange restrictions were widespread. By restricting international payments by individuals and business firms, nations impeded international trade and investment, attempted to maintain inappropriate exchange rates, introduced multiple exchange rates, discriminated against some exporting countries and favored others, limited total imports and protected home industries, and embraced the dangerous principle of bilateral trade balancing. It was evident that exchange restrictions might continue to throttle trade after the return of peace. Most countries ended the war with thoroughgoing exchange control, many needed large imports and were unable to export in large amounts, and some had accumulated heavy short-term debts to foreigners. Some method of hastening the relaxation of exchange restrictions in order to promote world trade was essential.

4. The inadequacy and instability of the rate of international long-term investment. Even before World War II international investment had several shortcomings. In the first place, it was generally inadequate. Industrially backward countries could have used advantageously much more foreign capital to develop their economies, and the richer nations could have lent more with advantage to themselves. In the second place, it was highly unstable. Credit flowed freely and in large amounts in some periods and fell precipitously in others. Such wide fluctuations were disturbing not only in the

exchange markets but also to the domestic economies of both lender and borrower nations. And in the third place, loans were often used by the lending nation to force political and economic concessions. The need for international loans after the end of World War II was tremendous. Countries whose economies had been devastated by war and whose ability to export had been seriously reduced needed large loans to speed the rebuilding of their factories, to buy necessary raw materials, to ward off famine, and to fund the large volume of their accumulated short-term debts to foreigners. Countries whose economies had suffered little damage during the war, such as the United States and Canada, could lend without much hardship, but it appeared improbable that private individuals and firms in those countries would be willing to assume the risk of making large foreign loans. It was clear that the necessary volume of international lending could be achieved only if the risk were socialized, and an international institution like the World Bank appeared to be the most appropriate instrument for distributing the risk equitably among the various nations.

With these facts in mind we can now look at the structure and functions of the International Monetary Fund and the International Bank for Reconstruction and Development.

THE INTERNATIONAL MONETARY FUND

Structure and Organization

The principal office of the International Monetary Fund is located in Washington, D. C. Early in 1947 about 44 nations had become members and more will probably join it. The Fund's assets are derived primarily from "quotas" subscribed by member nations, though the Fund may add to them through an excess of its earnings over its expenses. National quotas vary greatly, as is shown in Table 38. It should be noted that the quotas in the table are those arrived at in the articles of agreement and that they do not necessarily indicate the size of the Fund's assets as of any given date. Some of the signatories to the agreement—Russia, for example—have not

yet joined; other countries may be admitted later with the quotas assigned to them; and some may secure changes in their quotas. Thus France's quota has been raised at its own request from \$450 million to \$525 million, and Paraguay has secured an increase of from \$2 million to \$3,500,000 in its quota. By such adjustments nations can increase both their voting power and their ability to borrow from the Fund.

TABLE 38. QUOTAS TO BE SUBSCRIBED BY NATIONS JOINING THE INTERNATIONAL MONETARY FUND AS PROVIDED IN THE ARTICLES OF AGREEMENT

	Size of Quota (In millions of dollars)	Per Cent of Total Quotas
United States	\$2750	31.3
United Kingdom	1300	14.8
Russia	1200	13.6
China	550	6.3
France	450	5.1
India	400	4.5
Canada	300	3.4
Netherlands	275	3.1
Belgium	225	2.6
Australia	200	2.3
Brazil	150	1.7
Poland	125	1.4
Czechoslovakia	125	1.4
Union of South Africa	100	1.1
30 other nations	650	7.4
Total	\$8800	100.0

Though it is not accurate for any given date, Table 38 shows the Fund's general magnitude and the sources of its assets.

Each nation must pay part of its quota in gold. Its minimum gold subscription is the smaller of the following: (1) 25 per cent of its quota, or (2) 10 per cent of its net official holdings of gold and United States dollars as of the date the Fund notifies its members that it will shortly be in a position to begin exchange transactions. Each nation must pay the remainder of its quota in either gold or its own currency, which will usually mean creating a deposit account for the Fund with the nation's central bank. If, however, the Fund does not need part of the member's currency for its operations, it may accept obligations that are non-negotiable, non-interest-

bearing, and payable at their par value on demand at the Fund's depository in the country. If any nation devalues its currency in terms of gold, it must pay into the Fund an additional quantity of its money sufficient to protect the Fund against loss in terms of gold. Moreover, each member nation has agreed to place no restrictions on the use of its money held by the Fund. We shall see later that the Fund's assets are to be used to assist members in stabilizing their exchange rates.

Control and management of the Fund are vested in a Board of Governors, the Executive Directors, and a Managing Director. The Board of Governors, in which are vested all powers of the Fund, is composed of one appointee from each member nation. The voting powers of the governors are roughly proportioned to the size of the quotas of the countries that they represent; each governor has 250 votes plus one additional vote for each \$100,000 of his nation's quota.¹ Thus, the governor from the United States is entitled to cast 27,750 votes, the governor from the United Kingdom 13,250 votes, and the governor from Nicaragua 270 votes. Though the Board of Governors has ultimate control of the Fund and its policies, it can delegate all except a few of its most important functions to the Executive Directors.

The Fund has at least 12 Executive Directors. Each of the five nations with the largest quotas appoints one Executive Director, the other seven being elected by groups of countries. Each Executive Director is entitled to cast a number of votes equal to the number of votes possessed by the country or countries to whom he owes his selection. Table 39 shows the original Executive Directors of the Fund, the countries selecting them, and the number of votes possessed by each. The dominant voting power of the nations with the largest quotas is evident. The powers of the Executive Directors are similar to those of a corporate board of directors. Among them is the power to choose the chief executive officer of the Fund, who is called the Managing Director. Camille Gutt of Belgium was

¹ The voting power of each governor is altered by adding one vote for each \$100,000 of his nation's currency sold by the Fund and by subtracting one vote for each \$100,000 of foreign money purchased by his nation from the Fund.

TABLE 39. EXECUTIVE DIRECTORS OF THE INTERNATIONAL
MONETARY FUND, 1946²

Appointed Executive Directors		Votes
George Bolton	United Kingdom	13,250
J. V. Joshi	India	4,250
Yee-Chun Koo	China	5,750
Pierre Mendes-France	France	4,750
Harry D. White	United States	27,750
Elected Executive Directors		
G. W. J. Bruins	Netherlands	3,000
	Union of South Africa	1,250
		<u>4,250</u>
Rodrigo Gomez	Columbia	750
	Costa Rica	300
	Cuba	750
	Dominican Republic	300
	El Salvador	275
	Guatemala	300
	Honduras	275
	Mexico	1,150
	Nicaragua	270
		<u>4,370</u>
Camille Gutt	Belgium	2,500
	Iceland	260
	Luxembourg	350
		<u>3,110</u>
J. V. Mladek	Czechoslovakia	1,500
	Poland	1,500
	Yugoslavia	850
		<u>3,850</u>
Louis Rasminsky	Canada	3,250
	Norway	750
		<u>4,000</u>
Ahmed Zaki Bey Saad	Egypt	700
	Ethiopia	310
	Greece	650
	Iran	500
	Iraq	330
	Philippine Commonwealth	400
		<u>2,890</u>

² *Report of the First Annual Meeting of the Board of Governors of the International Monetary Fund, Washington, 1946, pp. 9-10.*

TABLE 39. EXECUTIVE DIRECTORS OF THE INTERNATIONAL MONETARY FUND, 1946 (*Continued*)

Elected Executive Directors		Votes
Francisco Alves dos Santos-Filho	Bolivia	350
	Brazil	1,750
	Chile	750
	Ecuador	300
	Panama	255
	Paraguay	270
	Peru	500
	Uruguay	400
		<u>4,575</u>

chosen as the first occupant of this position. His staff is recruited on an international basis, an attempt being made to distribute the positions among many of the member nations.

Functions

The broad purposes of the Fund, as stated in Article I of the Bretton Woods agreements, are:

1. To promote international monetary cooperation through a permanent institution which provides the machinery for consultation and collaboration on international monetary problems.
2. To facilitate the expansion and balanced growth of international trade, and to contribute thereby to the promotion and maintenance of high levels of employment and real income and to the development of the productive resources of all members as primary objectives of economic policy.
3. To promote exchange stability, to maintain orderly exchange arrangements among members, and to avoid competitive exchange depreciation.
4. To assist in the establishment of a multilateral system of payments in respect of current transactions between members and in the elimination of foreign-exchange restrictions which hamper the growth of world trade.
5. To give confidence to members by making the Fund's resources available to them under adequate safeguards, thus providing them with opportunity to correct maladjustments in their balance of payments without resorting to measures destructive of national or international prosperity.

6. In accordance with the above, to shorten the duration and lessen the degree of disequilibrium in the international balances of payments of members.

To achieve these broad purposes, the Fund will perform several specific functions: (1) Provide for continuous exchange of information and points of view among the member nations. Though this function is highly important we need not discuss it further. (2) Secure from each country a statement of the "initial" value of its currency in terms of gold or in terms of dollars of their present gold weight and fineness. (3) Provide an orderly procedure for later adjustments of exchange rates. (4) Provide financial assistance to countries needing aid in maintaining the selected exchange rate for their money. (5) Promote the relaxation of exchange restrictions, the elimination of multiple exchange rates, and the ending of discriminatory practices.

Initial Exchange Rates

There were wide differences of opinion as to when and under what conditions initial par values for the moneys of the member countries should be established. Many people, including some outstanding economists, contended that initial rates should not be fixed until economic conditions had been restored to "normal," trade restrictions relaxed, price levels stabilized, and information gathered concerning the structure of exchange rates that would maintain international equilibrium. This was not, however, the course followed by the Fund. On December 18, 1946, it announced initial par values for virtually all member moneys. The initial par values of the principal moneys, in terms of gold and of the United States dollar, are shown in Table 40.

Officials of the Fund were fully aware of the fact that many of the accepted initial exchange rates will prove inappropriate as nations reconvert their economies, relax trade restrictions, experience price level changes, and recover from the effects of the war. The structure of these rates is by no means considered permanent. Yet the officials, for the reasons indicated in their

press release at the time the initial par values were announced, believed it desirable for the Fund to begin operations early in 1947.

This is the first time that a large number of nations have sub-

mitted their exchange rates to consideration by an international organization and thus a new phase of international monetary cooperation has begun. The major significance of the present step is not in the particular rates of exchange which are announced, but in the fact that

TABLE 40. SOME INITIAL PAR VALUES ANNOUNCED BY THE INTERNATIONAL MONETARY FUND, DECEMBER 18, 1946

Country	Currency Unit	Currency Units per Troy Ounce of Fine Gold	U. S. Cents per Currency Unit
United States	Dollar	35.000	100.000
United Kingdom	Pound	8.68486	403.000
France	Franc	4168.73	0.839583
Canada	Dollar	35.000	100.000
Netherlands	Guilder	92.8498	37.6953
Belgium	Franc	1533.96	2.28167
Denmark	Krone	167.965	20.8376
Chile	Peso	1085.000	3.22581
India	Rupee	115.798	30.2250
Norway	Krone	173.697	20.150
Union of South Africa	Pound	8.68468	403.000
Philippines	Peso	70.000	50.000
Mexico	Peso	169.925	20.5973
Colombia	Peso	61.2495	57.1433
Peru	Sol	227.500	15.3846

the participating nations have now fully established a regime wherein they are pledged to promote exchange stability, to make no changes in the par values of their currencies except in accordance with the Fund Agreement, and to assist each other in attaining the general objectives of the Fund.

payments position at a high level of domestic economic activity. . . . When this occurs, the Fund will be faced with new problems of adjustment and will have to recognize the unusual circumstances under which the initial par values were determined. It is just at such times that the Fund can be most useful in seeing that necessary exchange adjustments are made in an orderly manner and competitive exchange depreciation is avoided."

The Fund realizes that at the present exchange rates there are substantial disparities in price and wage levels among a number of countries. In present circumstances, however, such disparities do not have the same significance as in normal times. For practically all countries, exports are being limited mainly by difficulties of production or transport, and the wide gaps which exist in some countries between the cost of needed imports and the proceeds of exports would not be appreciably narrowed by changes in their currency parities. In addition, many countries have just begun to recover from the disruption of war, and efforts to restore the productivity of their economies may be expected gradually to bring their cost structures into line with those of other countries. Furthermore, for many countries now concerned with combating inflation there is a danger that a change in the exchange rate would aggravate the internal tendencies toward inflation.

In view of all these considerations, the Fund has reached the conclusion that the proper course of action is to accept as initial par values the existing rates of exchange.

Adjustments of Exchange Rates

The temporary and experimental nature of the initial exchange rates accepted by the Fund emphasizes the importance of future adjustments of these rates. By what procedures, under what conditions, and for what purposes may a country adjust the value of its money in the exchange markets? On these questions there were wide differences of opinion. Some wanted to require fixity for exchange rates over long periods of time. They would have each country maintain fixed rates and secure equilibrium in its balance of international payments by increasing or decreasing the internal levels of its money supply, national money income, and price levels. In short, they would effect adjustments by a process similar to that under the international gold standard. At the other ex-

treme were those who would vary exchange rates to remedy practically every disequilibrium in a nation's balance of payments. To these people adjustments in balances of payments through changes in a nation's money supply, money income, and price levels are unacceptable. The principles accepted by the Fund represent a compromise between these extreme views. Exchange rates are to be "stable" but not "rigid."

The principle to be applied in adjusting exchange rates is as follows: The exchange value of a currency shall be altered only "to correct a fundamental disequilibrium." Though these broad terms have not yet been given a specific meaning, a few conclusions seem warranted. (1) A nation is not supposed to alter its exchange rate to correct a merely temporary disequilibrium in its balance of payments. Temporary difficulties are to be met by borrowing from the Fund or by other means. Only persistent disequilibrium is to be remedied by exchange rate adjustments. (2) A nation is not to adjust its exchange rate to offset a disequilibrium in its balance of payments resulting from a capital flight. Such a disturbance is to be met by direct control of capital movements or by other means. (3) A nation may alter its exchange rate if pressure on its balance of payments is such as to bring about unemployment of a chronic or persistent character. This was made clear in an interpretation given to the United Kingdom in September, 1946.

The Executive Directors interpret the Articles of Agreement to mean that steps which are necessary to protect a member from unemployment of a chronic or persistent character, arising from pressure on its balance of payments, are among the measures necessary to correct a fundamental disequilibrium; and that in each instance in which a member proposes a change in the par value of its currency to correct a fundamental disequilibrium the Fund will be required to determine, in the light of all relevant circumstances, whether in its opinion the proposed change is necessary to correct the fundamental disequilibrium.³

(4) Each member nation agrees to avoid competitive exchange alterations. By following such principles the Fund hopes to

³ *Ibid.*, pp. 105-106.

facilitate exchange rate adjustments that will remedy fundamental disequilibria and at the same time avoid frequent, temporary, and harmful fluctuations.

The Fund also provides an orderly procedure for the adjustment of exchange rates. A change in the par value of a member's currency may be made only on the proposal of the member and only after consultation with the Fund. The Fund may not force a member to make such an alteration, and the member may not act without first consulting the Fund. If the change proposed by a member nation, together with all previous changes, does not exceed 10 per cent of the initial par value, the Fund may not object to it. If, however, the proposed change plus previous changes is greater than 10 per cent of this value, the Fund may either concur or object. A member that changes the par value of its money despite the objections of the Fund is subject to penalties. Unless specifically permitted to do so, it may not use the resources of the Fund, and it may be forced to withdraw from it.

After the par value of a nation's money has been established, the nation undertakes to maintain actual exchange rates within a narrow range. Countries on inconvertible paper standards are to prevent exchange rates from rising above or falling below the selected par by more than 1 per cent. Those that buy and sell gold freely at fixed prices accomplish approximately the same result by fixing gold-import and gold-export points. It is important to note that most foreign-exchange transactions will not be carried on through the Fund. Private individuals, business firms, and banks are expected to operate in the foreign-exchange market in the ways described in Chapter 17. The Fund does not deal directly with private individuals and firms; it deals only with the Treasury, central bank, stabilization fund, or other fiscal agency designated by a member nation. Moreover, national central banks and stabilization funds will still have a function to perform in buying and selling exchange in order to maintain exchange rates within the limits mentioned above. For example, England has chosen a par value of £1 = \$4.03 for the pound. Under the agreement, that nation is obligated to prevent the pound from rising above or falling below par by more than

1 per cent; the pound is not to rise above \$4.07 or fall below \$3.99 unless the par value is adjusted. If the pound should tend to go above \$4.07, the British Exchange Equalization Account or some other designated agency is to offer pounds in the market in exchange for other money in a sufficient volume to arrest the rise. It is to be assumed that the British can always supply enough pounds to terminate a rise in sterling. If, on the other hand, the pound should tend to fall below \$3.99 the British are to buy sterling, offering gold or foreign money in payment, in a sufficient volume to stop the decline. If their holdings of gold and foreign exchange are adequate, they may not have to use the Fund's resources. But if they have an inadequate supply of gold and foreign exchange, they may in effect "borrow" foreign money from the Fund and sell it to halt the rise in foreign-exchange rates.

Financial Aid by the Fund in Stabilizing Exchange Rates

We noted in an earlier section that the Fund will have assets of between eight and nine billion dollars as a result of the quotas subscribed by member nations. Most of these assets are in the form of the money (largely deposit credits) of the member nations; the remainder is in the form of gold which presumably can be used to buy the members' money. The Fund is to use these assets to help countries that need aid in preventing their money from depreciating in the exchange markets. If, for example, Britain, Belgium, or any other member country has an adverse balance of payments and its money tends to fall in the exchange market, it may secure foreign money from the Fund and sell it to halt the rise in foreign-exchange rates. A nation secures foreign money from the Fund by paying for it with its own money. The Fund is essentially a great dealer in exchange, in that it sells the money of some countries and accepts in payment the money of the buying country. Thus, Britain could buy dollars from the Fund and pay for them with pounds. For these dollars, or for any other money purchased from the Fund, Britain would have to pay the parity price plus a service charge of $\frac{3}{4}$ of 1 per cent.

It was feared that the Fund would allow its assets to be wasted or used for inappropriate purposes in some countries. Some American bankers and Congressmen claimed that our \$2750-million quota would probably be lent by the Fund and never recovered and that it might be used to finance rearmament or relief programs. There are, however, several safeguards. (1) A member nation may buy the money of other nations from the Fund only with the permission of the latter's officials. (2) A member may use the Fund's resources only for making payments that are consistent with the provisions of the agreement. As the Executive Directors stated in September, 1946, ". . . Authority to use the resources of the Fund is limited to use in accordance with its purposes to give temporary assistance in financing balance of payments deficits on current account for monetary stabilization operations." Two aspects of this interpretation are important. In the first place, the Fund's resources are to be used only for temporary assistance; prolonged and chronic deficits in a nation's balance of payments are to be met through devaluation of its money or by other methods. And in the second place, the resources may be used to meet only balance of payments deficits on "current account"—that is, deficits on account of current international transactions in goods and services. They may not be used to meet large or sustained capital outflows from a nation. "A member may not make net use of the Fund's resources to meet a large or sustained outflow of capital, and the Fund may request a member to exercise controls to prevent such use of the resources of the Fund. If, after receiving such a request, a member fails to exercise appropriate controls, the Fund may declare the member ineligible to use the resources of the Fund."⁴ (3) Limits are placed on each nation's net purchase of foreign money from the Fund. The Fund may not increase its holdings of a nation's money during any twelve-month period by an amount exceeding 25 per cent of that nation's quota, and its total holdings of a nation's money may not at any time exceed 200 per cent of that nation's quota. This safeguard may well prove to be too restrictive on the Fund's activities. (4) A country

⁴ Article VI, Section 1 (a).

which remains a net purchaser of foreign money from the Fund over a long period of time must pay graduated service charges. (5) Each member promises to repay the foreign money borrowed from the Fund as it is able to do so. If the Fund officials administer these provisions in the spirit of the Bretton Woods agreement, the Fund's assets should be relatively safe.

Elimination of Exchange Restrictions

As noted earlier, one of the main purposes of the Fund is to promote the elimination of exchange restrictions, multiple exchange rates, and discriminatory monetary practices. All member nations pledge themselves to remove exchange restrictions on current transactions as soon as conditions permit and to employ them thereafter only in accordance with the Fund agreement. It is important to note that the use of exchange restrictions is not completely outlawed. (1) It is recognized that the elimination process will take some time. No later than three years after it starts operations, the Fund must begin to make annual reports on the restrictions that remain in force. And at the end of five years after the Fund begins operations each member who still has restrictions on payments for current transactions must consult with the Fund on the subject. If the Fund finds that the member persists in maintaining restrictions that are inconsistent with the purposes of the Fund it may force that nation to withdraw from membership. (2) The purpose of the Fund is to eliminate not all exchange restrictions, but only those relative to "transfers for current international transactions"—payments for goods and services, interest and other net income on international investments, moderate amortization of loans, and moderate remittances for family living expenses. Exchange restrictions aimed at controlling abnormal capital movements are not disapproved; in fact, the Fund may request members to impose them to control capital flights. (3) Members may restrict transactions in a national money that the Fund has declared to be "scarce." It is not to declare a money "scarce" unless the supply of it is so small relative to the demand for it that the Fund's ability to meet the demand is seriously

threatened. For example, dollars might become scarce as a result of large foreign demands for them when we purchased and lent abroad in inadequate amounts. Even in this case, however, a member that restricts purchases of dollars is pledged to make the restrictions no more stringent than is necessary to equalize demand and supply, and to relax them as rapidly as conditions permit.

THE INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

As noted earlier, the primary function of the World Bank is supplementary to that of the Fund; it is to facilitate the international flow of loans to promote the reconstruction of damaged areas, the development of backward areas, and the solution of problems relating to balances of payments over a longer period. It must be emphasized that the purpose of the World Bank is not to displace private international lending or to solve all the problems of reconstruction. In the first place, other loans, such as the American and Canadian loans to Britain, have been made to assist in reconstruction, and more are likely to be made in the future. And in the second place, banks, business concerns, and individuals may still make international loans without using the World Bank in any way. The Bank is to supplement, not replace, other flows of international loans.

Structure and Organization

Like the Fund, the World Bank has its principal office in Washington, D. C. And, like the Fund, it had approximately 44 members early in 1947. No nation may join the Bank without being a member of the Fund. The Bank is controlled in almost exactly the same manner as the Fund—by officials bearing the same titles, selected in the same way, and exercising voting power determined in the same way. Thus the nations with large capital subscriptions have a dominant voting power in the Bank.

The capital of the Bank is derived from subscriptions by member nations. That the amounts subscribed vary widely is shown in Table 41. It is to be noted that this table shows the

TABLE 41. NATIONAL SUBSCRIPTIONS TO THE WORLD BANK AS PROVIDED IN THE BRETTON WOODS AGREEMENTS

Nation	Size of Quota (In millions of dollars)	Per Cent of Total Quotas
United States	\$3175	34.9
United Kingdom	1300	14.3
Russia	1200	13.1
China	600	6.6
France	450	4.9
India	400	4.4
Canada	325	3.6
Netherlands	275	3.0
Belgium	225	2.5
Australia	200	2.2
Poland	125	1.4
Czechoslovakia	125	1.4
Brazil	105	1.2
Union of South Africa	100	1.1
30 other countries	495	5.4
Total	\$9100	100.0

total capital as agreed upon at Bretton Woods and does not necessarily give an accurate description of the condition of the Bank at any specific time; some of the signatories to the agreement have not yet joined, and other nations may become members later. Only a small part of the Bank's subscribed capital is to be paid in at the outset; the remainder is subject to call later. Before we can understand this, however, we must look at the methods used by the Bank to facilitate international loans.

Methods Used by the Bank in Making or Facilitating Loans

The Bank is empowered to augment the flow of international loans in three ways:

1. By making direct loans to borrowers out of its own capital and surplus. In making these loans the Bank may act alone or it may participate with others.

2. By making direct loans, either alone or with others, out of funds borrowed by the Bank itself in the loan markets of member countries. For this purpose the Bank is empowered to issue and sell its own bonds and other debt obligations.
3. By guaranteeing in whole or in part loans made by private investors through the usual investment channels.

The total of the Bank's outstanding loans and guarantees of loans may not at any time exceed its subscribed capital plus any accumulated surplus. And its direct loans out of its capital and surplus are limited to 20 per cent of its subscribed capital plus any accumulated surplus. The purpose of the remaining 80 per cent of its subscribed capital is to "guarantee" the bonds it issues as well as the loans by others that are insured by it.

The provisions governing payment of subscribed capital by member countries are consistent with the lending and loan-guaranteeing functions of the Bank. Each original member must pay 2 per cent of its subscription within 60 days after the Bank begins operations, another 8 per cent is subject to call within a year after that time, and a further 10 per cent is subject to call whenever the Bank needs the funds for its operations. The remaining 80 per cent of the subscription is callable only when needed by the Bank to meet its own debts to those from whom it has borrowed or to compensate private investors whose loans it has guaranteed. This balance will therefore be called only to the extent that borrowers fail to meet their obligations to the Bank or to lenders whose loans are guaranteed by the Bank.

In general the Bank is given full power to fix the interest rates, maturities, and amortization provisions relative to its own direct loans and to determine the conditions under which it will guarantee loans made by others. During the first ten years of its operations, its commissions for guaranteeing loans made by others and its commissions on its own loans extended from borrowed funds may not be less than 1 per cent or more than 1.5 per cent per year. Commissions may be adjusted after this ten-year period if experience warrants.

Conditions Under Which the Bank May Make or Guarantee Loans

To understand some of the limitations placed on the Bank's operations, it is necessary to mention some of the fears aroused by the proposal for its establishment. The principal ones were: (1) That the bank would replace the normal channels of international lending, thereby injuring the institutions previously operating in this field. (2) That the loans made or guaranteed by the Bank would be used for outright relief purposes, for uneconomic projects, for rearmament, or for other purposes that would not contribute to international reconstruction, peace, and security. (3) That the Bank would assume excessive risks and endanger its capital. (4) That the Bank's operations in lending or borrowing countries would disturb their domestic economies. (5) That the Bank's financial power would be used for "political" purposes.

To avoid these results, the articles of agreement placed several restrictions on the Bank's loans and guarantees. (1) The Bank may lend or guarantee loans only if it is satisfied that the borrower will otherwise be unable to obtain the loan under reasonable conditions. This provision plus the Bank's commission charges will encourage borrowers to seek funds through normal channels. (2) Except in special circumstances, loans made or guaranteed by the Bank shall be for specific projects for reconstruction or development. A competent committee is to study and make a written report on each loan application, and in extending or guaranteeing a loan the Bank must pay due regard to the ability of the borrower or his guarantor to meet the obligations created by the loan. (3) When the member nation in whose territory the project is located is not itself the borrower, the Bank may not make or guarantee the loan unless the member's government, its central bank, or some other comparable agency that is acceptable to the Bank fully guarantees payment of the principal and interest and all other charges on the loan. Thus, the securities issued or insured by the Bank should be relatively safe, for they will carry the guarantee not only of itself but also of the country in which the project is located and, in some cases, of the borrowing business concern or

political subdivision. (4) Each member country is to deal with the Bank only through its Treasury, central bank, stabilization fund, or other similar fiscal agency, and the Bank is to deal with members only through the same agencies. Moreover, it may lend the money subscribed for capital by a member country, borrow in a member country, or guarantee loans floated in a member country, only with that country's consent.⁵ These provisions prevent the Bank from influencing a nation's money markets and international payment position without its knowledge and consent. They may also, of course, permit a country to impede the Bank's operations. For example, its usefulness could be seriously impaired by our refusal to allow it to lend our dollar subscriptions, to borrow in this country, or to guarantee dollar loans. (5) The Bank may not require that the proceeds of a loan be spent in the territory of any particular member or members.

These restrictions were placed on the Bank's operations to increase its safety and to avoid the other dangers mentioned earlier. It is to be hoped that they will not prove so restrictive as to impair greatly its usefulness. The Bank could require such high standards of safety that it would serve no useful purpose, for any borrower who could meet such standards would probably be able to secure loans without its aid. This is not, however, a suggestion that the Bank should operate as a charitable institution.

THE FUTURE OF THE FUND AND THE BANK

In 1947, when this chapter was written, it was still too early to predict the actual policies or probable success of the Fund and the Bank. Both were just beginning their operations and had not yet indicated their ability to solve the serious economic, financial, and monetary problems that the world faced. Large sections were still suffering from civil war, military occupation, or the political machinations of the major

⁵ There is one exception to this general rule: after the Bank's subscribed capital has been entirely called, the Bank cannot be prevented from using a country's money to meet the Bank's contractual liabilities arising out of its own borrowings or loan guarantees.

nations; exchange controls were still widespread; many countries were still exercising strict control over imports or exports, or both; little progress had been made in lowering tariffs and other trade barriers; price levels were still rising in some countries and direct price controls were still in effect in others; settlement of reparations and war debt obligations had yet to be made; international lending was still dominated by government controls and abnormalities growing out of the war; and the existing structure of exchange rates would require many alterations before it would be conducive to an orderly and stable exchange of goods, services, and loan funds among freely trading nations. Both the Fund and the Bank still faced their real tests. It was not yet evident whether member countries would cooperate wholeheartedly through the new international institutions or whether they would attempt to use them to promote their selfish short-run national interests. But it was amply clear that the Fund and the Bank could not achieve their objectives, no matter how wise their policies or how efficient their administration, without the aid of other appropriate political and economic policies. A high and stable level of international trade requires an expectation of peace among the principal nations, a lowering of tariffs and removal of many other impediments to trade, and the avoidance of wide cyclical fluctuations in the major countries. This last must be emphasized; the volume of international trade cannot remain at high levels and exchange difficulties cannot be avoided if countries like the United States alternate between highly prosperous and extremely depressed periods. Unemployed people do not provide large markets for imports. The Fund cannot fully insulate its members from the effects of mass unemployment and reduced demand in other countries, and the Bank cannot stabilize international lending at a high level if national incomes in the lending and borrowing countries fluctuate widely. It is probably true, as many contend, that this country can make its greatest contribution to world prosperity and stability by maintaining high and stable domestic levels of employment and income so as to stabilize its demand for world exports. The same is true of other major nations. The success of the Fund and the Bank will depend

in considerable part on the wisdom and effectiveness of domestic economic policies as well as on other policies directly pertaining to international trade and finance.

THE FUND AND GOLD STANDARDS

Did the Fund agreement reestablish some sort of international gold standard? Though this question is frequently asked, it cannot be answered easily, partly because we cannot yet predict national policies under the Fund agreement, and partly because it is so difficult to define the essential characteristics of "a gold standard." We can safely say, however, that the new system has many characteristics that are the same as or similar to those of gold standards. Among these are the following: (1) The par value of each member's currency is stated in terms of gold. (2) Each member country is to maintain the actual value of its currency in the exchange markets within 1 per cent of its par value; these limits are similar to those provided by gold-export and gold-import points. (3) Each country will buy or sell gold to the extent necessary to prevent its money from appreciating or depreciating in the exchange markets beyond the limits indicated above. (4) Gold can be shipped internationally to settle any balance remaining after other transactions have been set off against each other in the exchange market. (5) The Fund will buy all the gold offered to it at the prices fixed by the existing par values. This provides an unlimited market for gold for monetary purposes.

The new system differs from traditional gold standards in at least one major respect: It does not disapprove of all changes in the gold values of currencies but makes provisions for such changes, both for individual currencies and for all currencies simultaneously. Stability in the price of gold is no longer the major goal of monetary policy; rather, its price may be changed by an orderly procedure whenever it will contribute to economic welfare. We cannot yet predict how often these changes will occur or how extensive they will be, but recognition of the fact that a change in the price of gold is

not necessarily dishonorable is an important change in the code of monetary ethics.

The Fund agreement is virtually silent as to the role to be played by gold within the member countries. There is no reason to expect that the metal will again be allowed to circulate within countries or that it will be made available in bullion form for domestic hoarding. In some countries private individuals or business firms may not be allowed to export or import gold, this function being reserved for central banks and treasuries. The role of gold in determining each nation's money supplies is also unclear. Some nations may allow gold imports and exports to expand and contract their money supplies and money incomes, whereas others will seek to avoid this. It seems likely, however, that all will tend to avoid "automatic" mechanisms and will rely heavily on deliberate monetary management. The Fund can perform an important function by using all its powers of moral suasion to secure domestic monetary policies within the member countries that will be consistent with each other and with exchange-rate policies.

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Money and Finance

THE PURPOSE OF THIS AND THE THREE FOLLOWING CHAPTERS is to study the relation of money to the processes of saving, of lending for consumption purposes, and of capital accumulation. The present chapter will deal with the fundamental processes involved, and the following chapters will describe some of the financial institutions whose purpose is to facilitate these processes.

We are all familiar with the analysis of saving, consumption borrowing, and capital accumulation in real or barter terms. In barter terms the act of saving is merely the failure of a person to use all his real income for current consumption. By failing to use for his own immediate consumption all the goods and services or productive factors that his real income can command, the saver releases them for other uses. Some of them may be used to make consumption loans to others; the saver may forgo immediate consumption and release goods and services or productive factors to satisfy the consumption demands of others who wish to consume more than their current incomes. A more important use of "savings" is to permit capital accumulation. By failing to consume as much as their incomes will permit, savers release goods and services or productive factors which can be used by other individuals, business firms, or governments to produce real capital goods in the form of buildings, machinery and equipment, inventories, and so on.

A barter analysis of this type serves to emphasize at least

two important facts about the processes of saving, lending, and capital accumulation. In the first place, it is not money capital but real capital goods—buildings, machinery, engines, inventories, and so on—that directly enhance the productivity of an economy. And in the second place, real capital can be accumulated only to the extent that the community is both able and willing to forgo consumption of part of its real income and to use the saved goods, services, and productive factors to construct real capital goods. A society that uses its entire productive capacity to provide goods and services for current consumption cannot add to its stock of capital goods.

Though barter analysis is useful for some purposes, we must not for a moment forget that in modern society the processes of saving, lending, and capital accumulation are monetary processes. To ignore the role of money in these processes is not merely to ignore a mechanical detail; it is to gloss over the source of serious economic difficulties and to make it impossible to understand business cycles and mass unemployment. Let us look at these processes in more detail.

MONEY SAVINGS OUT OF MONEY INCOME

In modern society most of us make a living by making money; we receive our income in the form of money wages, money interest, money rent, and money profits. We dispose of this money income in two principal ways. We spend part of it for consumption goods and services; it will be convenient to call these spendings *consumption*. The remainder of our money income we “save.” Thus the act of “saving” is the purely negative act of not spending some part of our money income for consumption. We shall discuss later the various uses to which these money savings may be put.

There are three principal sources of savings: (1) Savings by individuals out of their disposable incomes. Individuals, especially those in the higher income brackets, often fail to spend for consumption some part of the money income that actually comes into their possession. We shall call these individual savings. (2) Business savings. Business firms frequently

fail to pay out to their owners all the net profits that they have made during a period; in effect, the owners are forced to save the amount of earnings retained by the firm. These are savings by business firms out of their net income. Businesses also make "gross savings" through their depreciation and obsolescence allowances. They set aside part of their sales receipts to cover declines in the value of their capital equipment, and these amounts of money can be used for various purposes: to retire debts, to buy securities, to repair machinery, to buy new capital goods, to augment the cash holdings of the firm, and so on. (3) Government savings. Governmental units often use part of their revenues for purposes other than the purchase of consumption goods and services: to retire debt, to purchase capital goods, to enhance their holdings of money, and so on. A nation's total saving during any period is equal to the sum of individual, business, and government saving; it is also equal to the nation's total money income less the amount spent for consumption.

Motives for Saving

Individuals save part of their money incomes for various reasons, some of the most important of which are:¹ (1) To build up a reserve against unforeseen contingencies. (2) To provide for anticipated future needs, such as education, maintenance of dependents, and old age. (3) To enjoy capital appreciation, interest, or dividends. (4) To enjoy a gradually increasing level of consumption in the future. (5) To enjoy a sense of independence and the power to do things. (6) To secure a sizable purchasing power with which to carry out speculation, undertake business projects, or purchase in the future some expensive consumer good such as an automobile. (7) To bequeath a fortune. (8) To satisfy pure miserliness, i.e., unreasonable but insistent inhibitions against spending for immediate consumption.

The motives of business firms for saving are often complex, but some of the most important are: (1) To accumulate liquid

¹ This section borrows heavily from J. M. Keynes, *The General Theory of Employment, Interest and Money*, Harcourt, Brace, New York, 1936, pp. 107-108.

funds with which to meet contingencies or anticipated future needs, such as debt retirement. (2) To secure money with which to make capital improvements without incurring debt or selling additional ownership shares. (3) To pay regular dividends in future periods when earnings may be insufficient. (4) To satisfy the management's desire to err, if at all, on the side of overcautious prudence—to be sure to provide liberally enough for depreciation and obsolescence and to be able to meet any financial demands.

The motives of governmental units for saving are somewhat similar to those of business firms: (1) To retire debts. (2) To meet contingencies and anticipated demands. (3) To finance public works of a capital nature. (4) To stabilize tax collections.

It will be noted that in all these cases the motive for saving is to accumulate purchasing power for future needs, which may be either certain or uncertain.

Saving and the Demand for Output

We must emphasize that the act of saving *taken by itself*—the failure to spend some part of income for consumption—tends to reduce the demand for the output of the economic system. If the nation spent its entire money income for consumption—if it saved nothing—all its money income would return to the market as demand for output and would thus create an equal amount of money income. But the very act of saving is a reduction of spendings for consumption goods and services and tends to reduce the nation's money income. This reduction of the money demand for new consumption goods lowers their prices and makes it impossible for the consumption goods industries to offer employment to all the workers and other productive factors that are available for use. Thus, as would be expected from our barter analysis, the act of saving releases workers and other productive factors from the task of satisfying our consumption demands, and it does so by reducing the money demand for the output of the consumption goods industries. The productive facilities thus

released are made available for the production of new capital goods to be added to our existing stock.

But does the act of saving *taken by itself* assure that the workers and other factors of production released from the consumption goods industries will actually find employment in the creation of new capital goods? The answer must be in the negative. Capital goods are produced by specialized business enterprises which are operated for the purpose of making a profit; these enterprises will not buy materials, hire labor, and use their facilities to produce new capital goods simply because the community has elected not to spend all its money income for consumption. They will offer employment and produce new capital goods only if they can sell them at a price high enough to yield a profit—only if individuals, business firms, and governmental units will spend money for these newly created capital goods. And the amount of new capital goods that they will create depends on the amount of money that individuals, business firms, and governmental units will spend for their output. Hereafter we shall refer to spendings for newly created capital goods as *investment*. The amount of new capital goods produced, the amount of income created by the capital goods industries, and the amount of employment offered in them depend on the rate of investment expenditures.

We find, then, that two general conditions are necessary for capital accumulation. (1) The community must not spend all its money income for consumption; it must save. By saving, it decreases the demand for consumption goods, makes unprofitable the use of all the nation's workers and other productive facilities in the consumption goods industries, and releases them for use elsewhere. But though saving by the community is a necessary condition of capital accumulation, it is not sufficient. (2) Capital accumulation will actually occur only to the extent that individuals, business firms, and governmental units spend money for the output of new capital goods. Saving must be accompanied by investment if capital accumulation is to occur; the cautious self-denial of savers must be matched by an audacious willingness of others to spend money for new capital goods.

The preceding paragraph emphasized the fact that capital accumulation cannot exceed actual investment. But it understated the social importance of maintaining investment at a level high enough to absorb all the savings that the community elects to make out of its income when all its productive factors are fully employed. A high and stable level of national income and employment can be maintained only as long as all the nation's savings out of its high income find their way into investment. We saw earlier that saving taken by itself is deflationary; it is a reduction of the demand for the output of consumption goods, it decreases employment opportunities in the consumption goods industries, and it tends to lower national income. If, therefore, saving is not offset by investment it may usher in a cumulative fall in national income and employment. But if members of the community—individuals, business firms, or governmental units—are willing and able to spend for new capital goods as much as the community is attempting to save out of high levels of income, the deflationary effects of saving can be offset by the income-generating and employment-creating effects of investment. Thus, the saving-investment relationship is crucial, both because of its bearing on a nation's accumulation of real capital and because of its effect on the level of the nation's money income and employment. This is especially true in the United States, where the generally high level of per capita income, the concentration of income in the hands of the well-to-do, and a somewhat Puritan philosophy all combine to produce a high rate of saving. In a later chapter we shall see that attempts of a community to save more than it will actually spend for investment can initiate such a cumulative decline of national income as to destroy much of the community's ability to spend for consumption.

THE FLOW OF MONEY SAVINGS INTO INVESTMENT

By what process can money savings be translated into actual investment? The process is quite simple when the

decision to save is accompanied by the saver's decision to spend the money himself for new capital goods, and to do so as rapidly as he saves. A householder may save part of his income and use it immediately to pay for the construction of a new sidewalk, or a bathroom, or an addition to his garage. A farmer may reduce his consumption in order to buy a new plow or a milking machine. A business firm may use its retained net earnings and its depreciation and obsolescence allowances as fast as they are accumulated to purchase new machinery and equipment, to enlarge its plant, or to add to its inventories. A governmental unit may use its savings out of revenue to buy school equipment, improve streets, or purchase other new durable goods. In cases like these, money savings can be translated into investment expenditures without delay, without being offered as loans in the market, and without the use of financial intermediaries.

In most cases, however, the process of translating money savings into investment is much more complex and liable to failure, because the decision to save is usually not accompanied by the saver's decision to spend money himself for new capital goods and to do so as rapidly as he saves. Doctors, lawyers, business executives, skilled workers, and other individuals usually save without any intention of using their savings in the near future to buy new capital goods. Business firms often save by retaining net earnings and accumulating depreciation and obsolescence reserves without making contemporary expenditures for new capital goods. Governmental units may likewise save part of their revenues without making simultaneous investment expenditures. In these cases, which account for the bulk of our national saving, it is clear that money savings can be translated into investment only by being transferred directly or indirectly to other individuals, business firms, or governmental units who will spend them for new capital goods. In some instances the saved money moves directly from the saver to the person, firm, or governmental unit that spends it for investment. In others it follows a long and indirect route; for example, the saver may turn his savings over to an annuity company, which uses them to buy

previously issued securities from an investment trust, which then turns the money over to a business firm to be spent for new capital goods.

How do individuals, business firms, or governmental units that want to undertake investment get the money savings of others? What do they give in return? They must give in return either (1) shares of ownership, or (2) debt instruments. A partnership may secure \$10,000 of John Smith's savings by giving him a partnership interest. General Motors Corporation may acquire \$100 million of the community's savings by selling new ownership shares. In addition to or instead of issuing new ownership shares, those seeking additional money to use for investment may borrow; they may issue debt obligations. These debt obligations were described briefly in Chapter 8. The borrowing individuals, business firms, or governmental units may issue their own short-term promissory notes or acceptances, intermediate-term promissory notes, or long-term bonds. What we wish to emphasize in this paragraph is the fact that in modern society the process of translating money savings into investment requires the creation and sale of new security issues, and that these may be either evidences of ownership or evidences of debt. Money savings can become actual investment only if some members of the community are willing and able to issue an equivalent amount of new securities and if other members of the community are willing to buy and hold these new securities.² Thus the markets for securities—for shares of ownership and for debts with all maturities—play an essential role in translating money savings into actual investment and in determining the levels of national income and employment.

DISPARITIES BETWEEN SAVINGS AND INVESTMENT

The classical economists used to assume that investment could be neither less nor more than the amounts that the community elected to save out of its money income. They seemed to believe that all the money savings of the com-

² It is, of course, unnecessary for new securities to be issued to offset the money savings which are used directly by the savers themselves to buy new capital goods.

munity during any period must inevitably be translated into actual investment expenditures, and that investment expenditures could not exceed the amounts that the community was electing to save out of its income. Unfortunately these economists ignored two very important facts: (1) that money can be hoarded and dishoarded, and (2) that money savings can be absorbed or augmented by decreases and increases in the money supply.

Leakages Between Savings and Investment

We saw in Chapter 1 that money, as well as securities and commodities, can be used as a store of value. It is perfectly clear, therefore, that a decision to save money out of one's income is not necessarily a decision to buy securities or other assets; the saver may simply hold the saved money as an idle balance. It is true, of course, that the holding of money usually does not yield interest or other income such as could be secured by exchanging the money for securities or other assets. But the holding of money has its peculiar advantages: Money can usually be held without cost, it maintains its par value, and it has perfect liquidity, whereas the purchase and holding of securities or other assets involve some inconvenience, a risk of depreciation, and the danger that they cannot be quickly converted into (sold for) money without loss when their holders wish to spend their value. For these reasons savers themselves sometimes elect to add at least part of their money savings to their idle money balances, thereby preventing them from finding their way into actual investment.

Moreover, it is important to note that money savings may be hoarded and prevented from going into investment even if the saver himself spends them for securities; the person who sells the securities to the saver may elect to hold the money as an idle balance instead of spending it for new capital goods or for other securities. For example, suppose that Jones saves \$10,000 out of his money income and uses all of it to buy existing securities from Smith or some financial institution. The seller of the securities may for various reasons merely hold the money instead of channeling it into actual investment. Thus the fact that money can be held for indefinite

lengths of time instead of being spent for new output makes it possible for the amount of money actually going into investment to be less than the amount the community is trying to save.

But "hoarding" is not the only way that money savings can fail to become actual investment; money savings can also disappear from the income stream by being used to reduce the money supply. This is most easily seen when the banking system reduces the money supply by decreasing its loans and security holdings. Suppose, for example, that a business concern uses \$100,000 of its own or someone else's savings to pay a loan at the bank. The immediate effect is to reduce the money supply (demand deposits) by \$100,000, and this reduction will not be repaired unless the banking system makes new loans or buys more securities in the same amount. And for various reasons—the banks' fear of risk, lack of demand for loans at existing interest rates, and so on—the banks may allow the money supply to remain at the reduced level. The same result is achieved if part of money savings is used directly or indirectly to purchase securities from the commercial banking system and the banks do not replace them with new loans or new security purchases. For example, a saver may use \$100,000 of his savings to purchase securities previously held by the banks, and pay for them by allowing the banks to reduce his checking deposits by the same amount. Money savings thus disappear from the flow of money incomes by being used to reduce the money supply unless the banks create new loans or replace the securities sold. And for various reasons the banks may allow the money supply to remain at the reduced level.

In summary, then, money savings may fail to flow into actual investment, thereby reducing spendings for output and lowering the national income, either (1) by being absorbed in idle money balances (i.e., by being "hoarded") or (2) by being used to reduce the money supply.

Excesses of Investment over Savings

By processes which are the reverse of those discussed above, actual spendings for new capital goods may exceed the amount

of money savings out of the income that the community has just received.³ These are (1) net dishoardings from existing money balances, and (2) net increases of the money supply. At the beginning of any period of time the community holds cash balances in excess of the amount needed to meet immediate consumption expenditures. If, therefore, interest rates are considered to be favorable and risks not excessive, the community may offer for actual investment not only its money savings out of the income it has just received but some of its idle balances as well. Suppose, for example, that in some short period the community injects into investment not only its money savings out of the income it has just received but also \$100,000 of net dishoardings from what were previously its idle balances. These net dishoardings can thus swell expenditures for new capital goods and raise the level of national money income.

A similar result can be achieved through inflation of the money supply. Newly created money can be lent to enterprisers and used by them for investment. For example, the commercial banking system may create \$100,000 of new money (demand deposits) by making additional loans or by purchasing additional securities, and this newly created money may go into investment in addition to the savings made by the community out of the money income it has just received. This investment with newly created money not only accelerates the rate of capital accumulation but also swells spendings for output and raises the level of national money income.

Summary

We see now why it was so necessary to insist that in modern society the processes of saving and investment are monetary processes, and that this fact can greatly alter the operation of the economic system. A decision to save money out of income

³ The experienced economist will recognize, of course, that this whole treatment of the saving-investment relationship glosses over the difficult problems of definition and timing. I believe, however, that it clarifies the processes involved; a more accurate treatment will be given in Chapter 31.

is not automatically a decision by the saver to spend the money himself for new capital goods. Nor is there any assurance that acts of saving money by some parts of the community will be exactly matched by acts of actual investment in an amount equal to net additions to hoards plus the net decrease of the money supply made available for investment. Thus the rate of investment depends not only on the willingness of the community to forgo consumption, but also on its willingness to lend its money savings (to buy securities), on increases and decreases of the money supply, and on the willingness of individuals, business firms, and governmental units to spend as investment.

INTEREST RATES

Money markets are an essential element in the process of translating money savings into investment. These are the markets, some centralized and highly organized and others decentralized and informal, in which the thing traded in is the "use of money." Here money is offered in exchange for securities, and securities are offered in exchange for money. One of the invariable and outstanding characteristics of these exchanges is the fact that those offering money will not part with it in exchange for securities unless they expect thereby to get back in the future more money than they are offering in the present. They must expect a net future reward for giving up their money in the present. Those exchanging their money for shares of stock or other evidences of ownership must expect in return a higher money value in the future in the form of dividends, or an increase in the price of the stock, or both. Those giving up money in exchange for evidences of debt—promissory notes, acceptances, bonds, mortgages, etc.—must expect to get back the amount lent plus interest. For example, you might refuse to buy a one-year promissory note for \$100 unless the borrower promised to pay \$100 at the end of a year plus \$4 in interest. Thus interest is the price paid by borrowers and received by lenders for the use of money. It is a cost to the borrower and an income to the lender.

Why is interest paid? What determines the level of interest rates at any time? These are two of the most difficult questions in economic theory, and we cannot answer them fully in this book. We can, however, point out some of the issues involved.

The Classical Theory of Interest

The classical economists considered interest to be the price paid for saving, that is, the reward necessary to induce people to forgo consumption in the present. And the rate of interest, they maintained, was determined by the supply of saving and the demand for saving. The supply of saving, in turn, depended on (1) the amount of income available to the community, and (2) the willingness of people to forgo consumption in the present. The size of the national income being given, the supply schedule depended upon the willingness of people to save. And the amount of saving that would be done was usually believed to vary with the rate of interest that could be acquired. For example, the community might save $\frac{1}{15}$ of its income for an interest return of 2 per cent, $\frac{1}{12}$ of its income for an interest return of 3 per cent, $\frac{1}{10}$ of its income for an interest return of 4 per cent, and so on.

The market rate of interest was believed to depend not only on the supply schedule of saving but also on the demand schedule for the use of savings. The total demand for savings is made up of two parts: (1) the demand for savings to be used for consumption purposes, and (2) the demand for savings to be used for capital accumulations. The demand for consumption loans, which is a minor part of the total demand, depends upon the degree of "impatience" of the consumer-borrowers to secure goods in the present. The demand for loans for capital accumulation depends on the borrowers' estimates of the "marginal productivity" of the capital goods to be purchased with the borrowed money. Those who borrow to spend for new capital goods do so for the purpose of increasing their net earnings. The interest rates that they will offer for loans depend, therefore, on the rates of net return that they expect to receive on their new investment. For example, an enterpriser will not pay more than 6 per cent for

a loan if he expects the annual net return on new investments to be 6 per cent; he will not pay more than 4 per cent if he expects the annual net return to be only 4 per cent; and so on. The demand schedule for savings at any time has the general shape of other demand schedules; more savings will be taken for use at low interest rates than at higher interest rates. This is because of differences in the expected profitability of various investment opportunities. Some offer a very high rate of return, others offer somewhat smaller returns, and so on. The classical theory of interest stated that the market rate of interest at any time is determined at that level which equates the supply of savings with the demand for savings.

In summary, then, the classical theory of interest held that:

- (1) Interest is the price paid for saving, that is, for forgoing present consumption.
- (2) The supply of savings offered for use depends upon and is equal to the amount of saving that the community is willing to do at various interest rates. This point must be emphasized; the classical theory maintained that the actual supply schedule of savings offered in the money market was identical with the supply schedule of saving by the community out of its income.
- (3) The total demand for savings is composed of the demand for savings to be used for consumption and of the demand for savings to be used for capital accumulation. The latter is by far the larger part of the demand, however, so the demand for savings is dominated by enterprisers' expectations as to the rate of net return to be realized on new investment.
- (4) Interest rates are determined by the supply of savings and the demand for savings.
- (5) Market interest rates will always adjust themselves in such a way as to equate the demand for savings with the amount that the community is willing to save, and will do so without changing the level of money income. Thus, any tendency for the community to save more than can profitably be used for investment will be promptly remedied by a decline of interest rates, which will restore equilibrium by decreasing the amount saved and by increasing the amount of savings taken for investment. And this adjustment will be achieved without any deflationary effect on national income.

Criticisms of the Classical Theory of Interest

During recent decades the classical theory of interest has been subjected to severe and basic criticisms, especially by students of monetary theory and business cycles. Little fault is found with the classical analysis of the demand for money savings. The critics agree with the classicists that the total demand for money savings is composed of the demand for savings for consumption use plus the demand for investment use, and they also agree that the demand is dominated by borrowers' estimates as to the profitability of new investment. The criticisms focus upon the classical analysis of the supply schedule of money savings, especially on the closely related classical contentions: (1) that the supply schedule of funds offered in the money market is determined by and is necessarily identical with the savings made by the community out of the income it has just received, and (2) that interest is to be regarded solely as a reward for saving and must be paid only to overcome the reluctance to forgo present consumption.

Our earlier discussions in this chapter should have made it clear that the amounts of funds actually offered in the money markets for use need not coincide with the amounts of savings that the community is willing to make out of the income it has just received. The quantities actually offered for use may be less than the quantities saved out of income by an amount equal to net additions to hoards plus the net decrease in the money supply. On the other hand, the quantities of money offered for use may exceed the quantities saved out of income by an amount equal to net dishoardings plus the net increase in the money supply.

This is shown diagrammatically in Fig. 12. Let DD be the demand schedule in the money markets at any time, and SS the schedule of the community's savings out of the income that it has just received. If the supply schedule of savings offered in the market is identical with the savings schedule of the community, interest rates and the quantity of funds actually lent and borrowed will be determined at the intersection of the SS and DD curves. All the savings of the com-

munity will be used for investment. But if the community uses for net hoardings or for net reductions of the money supply an amount of savings equal to the horizontal distance between the SS and S_dS_d curves, the supply of money offered in the market for use will become the S_dS_d curve, and the height of interest rates and the quantity of money actually lent and borrowed will be determined at the intersection of

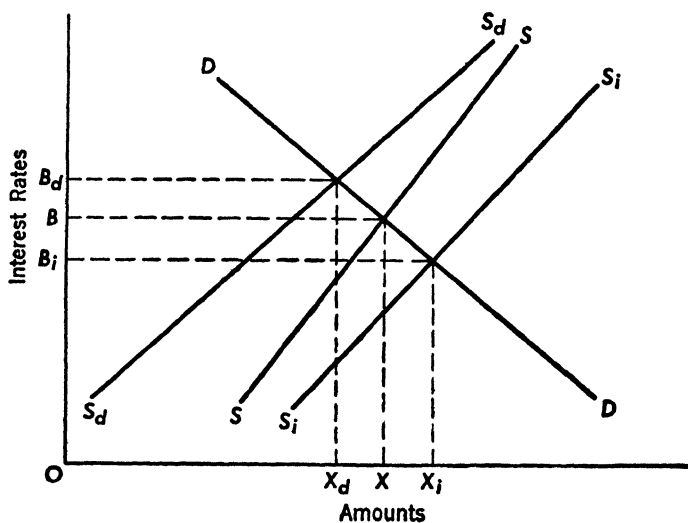


FIG. 12.

the S_dS_d and DD curves. It will be noted that the effect of using a part of savings for net hoardings or for a reduction of the money supply is to raise interest rates and to reduce the amounts actually lent and borrowed. In the figure, interest rates are raised from B to B_d and the amount of money taken for use is reduced from X to X_d . On the other hand, the community may offer for use in the money markets amounts of money equal to its savings plus net unhoardings and a net increase in the money supply. S_iS_i is such a supply curve, the horizontal distances between the SS and S_iS_i curves measuring the net amounts emanating from net dishoardings and the creation of new money. Under such conditions the

height of interest rates and the amounts actually lent and borrowed are determined at the intersection of the S_1S_2 and DD curves. The effect is to lower interest rates and to increase the amount actually lent and borrowed. In the figure, interest rates are lowered from B to B_1 and the amount of money taken for use is increased from X to X_1 .

The preceding paragraph emphasized the fact that the supply of loanable funds in the money markets depends not only on the community's willingness to save out of its income but also on changes in the quantity of money and on the willingness of the members of the community to exchange their money for securities. This suggests a major criticism of the classical theory that interest is merely the reward for saving—for failing to spend for consumption. Interest is not paid for the mere act of saving; the saver who adds his money savings to his idle money balances receives no interest. Interest is received only if the owner of the money parts with it in exchange for securities or other comparable claims.⁴ The fact that interest is paid only to those who part with their money and hold other claims has given rise to a new theory of interest—the “liquidity preference theory.” According to this view, interest is the price paid not to overcome the reluctance to save but to overcome the reluctance to part with money in exchange for other claims. Interest must be paid to overcome people's preference for holding money rather than other claims. Though this theory is highly useful in pointing out a serious error in the classical theory, it goes too far when it denies any relation between interest rates and the reluctance to refrain from spending for consumption. The fact is that one can enjoy an interest return only if he *both* saves *and* exchanges his money savings for other claims. One can fail to earn interest *either* by spending his money for consumption *or* by hoarding it.

We are thus led to the conclusion that interest rates are at once a reward for refraining from consumption and a reward for refraining from holding money as an idle balance. And the height of interest rates at any time measures the marginal

⁴ The person who parts with his money may, of course, receive an income comparable to interest by purchasing ownership shares or real capital goods.

reluctance to save and also the marginal reluctance to refrain from holding money as an idle balance. This follows from the fact that the owner of funds may distribute them among three general uses: (1) He may spend them for consumption, (2) he may hold them as a money balance, or (3) he may hold them in the form of other claims. Moreover, each person will distribute his funds among these three uses in the proportions that seem most advantageous to him. This means that he will equalize the *marginal advantages* in the three uses; he will not use for one purpose dollars that would yield a greater marginal advantage if used for one of the other purposes. Thus, interest rates yielded by securities at any time represent the reward that must be received by marginal holders to make the marginal advantage of holding securities equal to the marginal advantage of using funds for consumption or of holding idle money balances. If we are careful to keep in mind the dual nature of interest we may validly argue, as will be done in the remainder of this chapter, that interest rates measure the payments that are necessary to equalize the marginal advantage of holding securities (either short-term or long-term) as against holding idle money balances.

Interest as a Reward for Parting with Money Balances

Why do people prefer to hold money rather than other claims? Why must they receive interest on these other claims to make them as attractive as idle money balances? We have already seen that money can usually be held without cost, that it is perfectly "liquid" in the sense that it is generally acceptable in payment for anything that one wishes to buy, and that it is "riskless" in the sense that it does not depreciate in terms of itself—a dollar is always worth a dollar. Other claims lack these attributes in varying degrees. Their holders suffer disadvantages of the following types: (1) inconvenience of purchasing, holding, and selling the securities; (2) "illiquidity" of the securities; and (3) risk of loss of principal value.

The holding of any security necessarily involves some inconvenience and other costs. The holder must himself investigate or hire someone else to investigate the quality of the

security, he must incur the costs of purchasing it, he must provide safekeeping for it and protect his position while he holds it, and he may incur some cost in disposing of it. Moreover, these claims are usually less than perfectly "liquid"; they are not themselves generally acceptable in payment for other things, and there is always the danger that they cannot be sold for money instantly and without loss in value. Because of this lack of perfect liquidity, other claims are less satisfactory than money as a store of value with which to meet unforeseen contingencies of an emergency nature. And, finally, the holding of a security involves the risk of loss of principal value; the security for which you pay \$1000 today may be worth only \$950 a year from now, or it may be worth more than \$1000. This risk of loss is traceable to two facts: (1) The annual income received on the security may turn out to be less than was anticipated, or the debtor may be unable to pay the principal as he promised, and (2) the market rate of interest may rise in the future. It is easy enough to see why the value of a security should depreciate if the annual income received on it was less than was anticipated or if it became apparent that the debtor might not pay as promised. It may not be so clear, however, why a rise in interest rates should lower the principal value of an outstanding security. To understand this point one must remember that the principal value of a security is merely the present discounted value of expected future returns on it; future returns are discounted at the prevailing market rate of interest on that type of security. The principle is shown most clearly in the case of a perpetual bond which yields \$40 a year in interest. If the market rate of interest is 4 per cent, the principal value of the bond will be \$1000 (that is, $\frac{\$40}{.04}$). If, however, the market rate of interest rises to 6 per cent, the principal value of the bond will fall to only \$666.67 (or $\frac{\$40}{.06}$). It is true, of course, that the shorter the maturity of a security the less will a given rise in interest rates reduce its principal value. Nevertheless, the prospect of a future rise in interest rates may add considerably to the risk of holding longer-term securities. On the

other hand, a future decline in interest rates will increase the principal value of existing securities.

We may conclude, then, that the interest yield on a security at any time is just high enough to offset the marginal buyers' estimates of the disadvantages of holding the security because of: (1) the inconvenience and other costs involved in buying, holding, and selling it; (2) its illiquidity; and (3) the risk connected with holding it. This interest reward just equalizes the marginal advantages of holding the security as against holding money balances.

Differentials in Interest Rates at any Time

One of the most striking characteristics of money markets is the great variety of interest rates to be found at any given time. For example, the following interest rates existed in the New York City area early in April, 1947:

Type of Security or Other Claim	Interest Yield in Per Cent per Annum
90-day U. S. Treasury bills	$\frac{3}{8}$ of 1%
One-year U. S. Treasury notes	$\frac{7}{8}$ of 1%
30- to 60-day prime banker's acceptances	$\frac{7}{8}$ of 1% to $1\frac{3}{16}$ of 1%
Call loans on the N. Y. Stock Exchange	1½%
Time loans on the N. Y. Stock Exchange	1¼ to 1½%
20-year bond of R. R. "A"	5%
20-year insured home mortgages	4%
New York City bank short-term loans to a small business concern	2¼%
New York City bank short-term loans to a medium-sized business concern	2%
New York City bank short-term loans to a large business concern	1%
New York City bank short-term loans to consumers	9%
Installment credit costs	11% and up

These were only a few of the many interest yields in that area at that time. A comparison with other cities would show even greater differentials.

How are these differences in interest rates to be explained? In the first place, the different parts of the money market vary greatly as to both the extent of competition and monopoly prevailing in them and the mobility of credit. Some securities, such as debts of the federal government and the

General Motors Corporation, enjoy a highly competitive demand in all the money markets in the country. Others, especially the debts of small business concerns and individual consumers, enjoy only a local demand where the monopoly power of one or a few lenders is high. Some of the differentials in interest rates are attributable to the imperfect mobility of credit and to the other imperfections of competition. But by no means are all interest differentials to be attributed to the imperfections of competition in the money markets. We must emphasize, in the second place, that some differentials in interest rates would be present even if credit were completely mobile and if competition in money markets were perfect. This is because of differences in the attractiveness of the various claims, owing to differences in: (1) the inconvenience and other costs of buying, holding, and selling them, (2) liquidity, and (3) risk.

The purchase, holding, and selling of some claims involve little inconvenience or other cost. Securities of the federal government, prime banker's acceptances, and call loans on the stock exchange can be safely acquired and held without any significant credit analysis, without the payment of large purchase commissions, and without difficulty in collecting interest and principal. At the other extreme, small loans to consumers or small businesses of doubtful credit standing often involve high costs for credit analysis, high costs for protecting one's interests, and high costs for collection. The liquidity of claims also varies widely. Some, such as banker's acceptances and short-term government obligations, enjoy a high degree of marketability so that they can be liquidated quickly without sacrifice of value. Others, such as uninsured mortgages on urban or farm residences, loans to consumers, or loans to small retailers, may be convertible into money only slowly unless their holders are willing to sacrifice a considerable part of their value. And, finally, claims vary greatly as to the degree of risk involved in holding them. The risk connected with holding short-term government bills, prime banker's acceptances, and stock exchange call loans is usually almost negligible. The risk of holding longer-term government debts may be greater, both because the government's ability to meet its obligations in the remote future is harder to predict

and because of the possibility of a future rise in interest rates. And the risk involved in holding other long-term claims, such as the bonds of a financially weak railroad, is likely to be still greater.

Thus, interest rate differentials would exist even in a perfectly competitive money market with complete mobility of credit, and they would be traceable to differences in the attractiveness of the various claims. We concluded earlier that the interest yield on a security at any time is just high enough to offset the marginal buyers' estimates of the disadvantages of holding it because of: (1) the inconvenience and other costs of buying, holding, and selling it; (2) its illiquidity; and (3) the risk involved in holding it. In a perfectly competitive market with perfectly mobile credit, interest differentials on the various kinds of claims would measure the marginal buyers' estimates of the differences in these three disadvantages. Buyers of securities, being free to distribute their purchases in the ways that seem most advantageous to them, would equalize the net advantages of holding the various kinds of claims. Securities that involved the least inconvenience, illiquidity, and risk would have the lowest interest rates. Other securities involving greater inconvenience, illiquidity, and risk would have to carry correspondingly higher interest rates to be equally attractive to purchasers.

The principles outlined in the preceding paragraph go far toward explaining differences in interest rates in a given market at a given time. To secure a more accurate explanation of the actual structure of rates, the analysis must be supplemented by a careful study of credit immobility and other imperfections of competition; but this is beyond the scope of this book.

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The Functions of Financial Institutions

THE PRECEDING CHAPTER EMPHASIZED AT SOME LENGTH THE importance of saving and investment as determinants of the rate of capital accumulation and the size of our national income. We found it essential to distinguish clearly between saving, which is the purely negative act of failing to spend a part of income for consumption, and investment, which is the positive act of spending for newly produced capital goods. Saving *taken by itself* is deflationary; it reduces the demand for the output of the consumption goods industries and reduces national income. But investment *taken by itself* is expansionist; it creates employment opportunities in the capital goods industries and adds to national income. We can maintain high levels of employment and national income only as long as some members of the community—individuals, business firms, and governmental units—are willing to spend for newly created capital goods as much as the community tries to save out of the high incomes it receives. We also found that the processes by which funds flow into investment vary greatly. In some cases the process is simple; the savers may themselves spend their savings for new capital goods and do so as rapidly as they save. But this accounts for only a relatively small part of savings. In far more cases the saver does not himself concurrently spend an equal amount for new capital goods. These savings, which account for the bulk of

aggregate savings, can become investment only by being transferred to others who are willing to spend them for new capital goods. This process requires the creation and sale of new securities. Those parting with money receive in return from the fund-seeking individuals, business firms, or governmental units instruments representing shares of ownership; or bonds, mortgages, or other evidences of long-term debt; or evidences of short-term debt, such as promissory notes, acceptances, or book credits. Thus, the process of converting money savings into actual investment requires that those seeking funds for investment be willing to create and sell these types of securities and to pay interest or some other comparable form of return on them, and that the members of the community be willing to buy and hold these securities.

We might, of course, attempt to channel savings into investment without the use of any specialized intermediary institutions; those possessing investable funds might attempt to deal directly with those who are seeking funds for investment. But such a process would be highly unsatisfactory. How much would be lent if each saver had to perform for himself the functions of exploring all the possible outlets for his savings, analyzing the creditworthiness of potential borrowers, attending to all the complex details of drawing up credit contracts, and protecting his own interests after the loan was made? Many savers—doctors, salesmen, ministers, teachers, skilled workers, and many others—have neither the training nor the experience required for these functions, and even those with the necessary training and experience would find it highly burdensome to do all these things each time they wished to part with their money for an earning asset. Imagine the difficulty General Motors would experience if it attempted to sell \$100 million of new securities by making a house-to-house canvass. In this field, as in others, specialization is necessary for maximum efficiency, and there are many types of specialized financial institutions whose social purpose is to facilitate the exchange of money for other claims. To the extent that they achieve their social purpose they promote the flow of funds into investment and decrease the costs involved in the process.

GENERAL FUNCTIONS OF FINANCIAL INSTITUTIONS

We shall not be able in this book to describe fully all the types of financial institutions that are involved in the process of exchanging money for debt instruments and shares of ownership. We can, however, describe the principal functions that they perform and then survey briefly some of the most important financial institutions. These institutions can facilitate the flow of funds into investment by performing one or more of the following general functions: (1) investigation and credit analysis; (2) The purchase, holding, and sale of securities; (3) diversification and insurance against risk; and (4) increase of liquidity. We shall analyze these functions more fully.

Investigation and Credit Analysis

Knowledge is an important element in having efficient money markets. We need to gather and compare information as to the yields that can be secured on investment in various geographic areas, in various industries, and in various business firms. We also need information as to the future abilities of concerns to pay dividends, interest, and principal. This information is necessary from the social point of view if new capital is to be routed to the industries and firms in which it can contribute most to output. It also reduces risk, since risk is born of uncertainty, and it enables the owners of investable funds to reduce their losses.

Investigation and credit analysis are carried on by many institutions. Much of the basic material comes from the balance sheets and profit and loss statements published by business firms, from regulatory agencies such as public utility commissions and the Securities and Exchange Commission, from government research, from specialists in market analysis, and from Better Business Bureaus. Some firms, such as investment counselors, economic advisory services, and financial publications, use this information, together with that gathered by themselves, and sell their specialized services to

individual investors and financial institutions. But much investigation and credit analysis are carried on by financial institutions that perform other services as well. For example, investment banks rarely agree to market a new issue of securities without analyzing the probability that the issuer will be able to meet his obligations; insurance companies investigate securities carefully before purchasing them; and savings banks analyze securities before buying them with the depositors' money.

The Purchase, Holding, and Sale of Securities

In the absence of financial institutions, each owner of investable funds would have to do for himself the routine and technical tasks of seeking securities, insuring that they were valid, purchasing them, providing safekeeping for them, making sure that the issuer did not dissipate its assets or otherwise threaten the investor's interests, collecting income and principal payments, and selling the securities. Financial institutions now assist in these operations in many ways. Investment banks, brokers, and dealers assist buyers in purchasing and selling securities; they sometimes carry an inventory for sale. We shall see later that the money markets include many institutions that correspond to jobbers, brokers, wholesalers, and retailers in commodities. Theirs is the function of acting as intermediaries between buyers and sellers. Financial institutions that collect and use the funds of others also carry out these routine and technical operations of buying, selling, and holding securities, of collecting income and principal, and of insuring that their interests are protected. Thus depositors in savings banks entrust all these operations to the management.

Diversification and Insurance Against Risk

We are all aware of the risk of putting all our eggs in one basket—one mishap, and all is lost. The same principle applies to holding all of one's wealth in the form of one type of secu-

rity. Yet only a very wealthy person owns enough funds to be able to secure wide diversification. Financial institutions that collect the funds of many people and use them to buy a widely diversified list of securities can meet this need. For example, a savings bank can accept money on deposit from 20,000 people and use the aggregate sum to purchase many kinds of securities issued by a large number of firms operating in several industries located in various geographic areas. In effect, each depositor has a proportional claim against a highly diversified group of securities; the safety of his claim depends not on the value of one security but on the value of the diversified list. Diversification reduces risk, for the future value of a large group of securities is easier to predict than the value of a single security. A decrease in the value of one security will have only a small effect on the value of the combined holdings, for a decline in one may be at least partially offset by a rise in others.

In addition to reducing the total amount of risk by a wide diversification of assets, financial institutions can distribute the remaining risks unequally among those who provide the funds, thereby distributing risks in accordance with the willingness of investors to bear them. For example, an investment trust may acquire \$60 million of funds with which to buy other securities by selling: (1) \$20 million of its own 3 per cent bonds. The holders of these bonds may be given a first claim against both the assets and the income of the trust. (2) \$20 million of its own 4 per cent preferred stock. This stock may be given a claim against both assets and income that is subordinate to that of the bondholders but prior to that of the holders of common stock. And (3) \$20 million of its own common stock. The claims of these stockholders are subordinate to those of both the bondholders and the preferred stockholders. By accepting the position of residual claimants the venturesome common stockholders shoulder more than their proportional share of the risk on both principal and income accounts and protect the holders of preferred stock and bonds. By accepting claims that are subordinate to those of the bondholders, holders of the preferred stock

decrease the risk of holding bonds. By such an unequal distribution of risk a financial institution can secure funds from different groups of people who vary greatly as to their willingness to bear risk.

Some institutions specialize in insuring investors against loss. Thus, the Federal Housing Administration insures mortgages on urban homes, the Federal Deposit Insurance Corporation insures the safety of funds entrusted to commercial and savings banks, and the Federal Savings and Loan Insurance Corporation insures the safety of funds left with savings and loan associations. These institutions assume risks of future losses and charge a fixed annual premium for the service.

Increase of Liquidity

We saw earlier that the illiquidity of securities is one of the reasons why people are reluctant to hold them, preferring to hold money balances instead. Financial institutions operate in several ways to provide a higher degree of liquidity to those who part with money and hold other claims. In the first place, a highly organized securities market, including dealers, speculators, brokers, and stock exchanges, greatly increases the speed and economy of selling securities when one wishes to exchange them for money. These marketing mechanisms do not, of course, provide perfect liquidity; they do not assure stable security prices. They permit an individual seller to dispose of his securities easily and without serious loss when others are in a buying mood, but not when there is a surge of mass selling. Moreover, the various classes of securities still differ greatly as to their marketability. Some enjoy a highly organized market; among these are the federal debt, securities of large and well-known corporations, and banker's acceptances. But the marketability of consumption debts, uninsured mortgages, and the securities of small and little-known business firms is still relatively low.

In the second place, financial institutions increase the liquidity of securities by standing ready to lend on them. The

security holder can borrow money for use while he seeks a good market in which to sell.

In the third place, financial institutions that pool the funds of many savers may give each saver claims that are more liquid than the securities held by the financial institution itself. For example, a depositor in a savings bank may be permitted to withdraw his funds almost at will despite the fact that many of the securities held by the bank are relatively illiquid; the owner of shares in a savings and loan association may be permitted to withdraw his funds on short notice despite the fact that the association's assets consist largely of relatively illiquid mortgages. Financial institutions may meet these withdrawals of money in several ways: out of new money left with them by other savers, out of relatively small money balances held for the purpose, out of borrowings from other financial institutions, and out of funds acquired by selling some of their most liquid securities.

In the fourth place, there are specialized financial institutions that increase the liquidity of other financial institutions. We have already mentioned this role of the Federal Reserve banks. A considerable part of the liquidity of banker's acceptances is traceable to the willingness of the Reserve banks to purchase all offered to them at the established rate of discount. The shorter-term government securities were made almost completely liquid during and immediately after World War II by the Federal Reserve's policy of standing ready to purchase them at a fixed price. The general liquidity of member banks is increased by their ability to borrow at the Reserve banks. Other institutions perform a somewhat similar function, though they do not have the Federal Reserve's power to manufacture money. Thus, the Federal Home Loan Banks lend to savings and loan associations and other similar institutions, the Federal Intermediate Credit banks lend on various types of agricultural paper, and the Federal National Mortgage Association provides a continuous market for certain classes of insured mortgages. Other similar cases could be cited. All arrangements that permit one financial institution to secure money from others in time of need enable it to issue more liquid claims to individual savers.

Summary

We found in the preceding chapter that the reluctance of people to part with money and to hold other claims is traceable to the fact that the holding of these other claims involves the disadvantages of: (1) the inconvenience of purchasing, holding, and disposal of the claims; (2) the illiquidity of the claims; and (3) the risk of losing the principal value. To the extent that financial institutions reduce the inconvenience, illiquidity, and risk of holding other claims they increase the amount of money offered for use and reduce the cost of investable funds to those who use them.

Having outlined the general functions performed by financial institutions, we can now study some of their principal types.

SECURITIES MERCHANTS

We shall apply the term "securities merchants" to financial institutions whose primary function is not to buy and hold securities, either short-term or long-term, but to act as intermediaries in facilitating the flow of securities from sellers to buyers. Some act as dealers, buying securities on their own account for the purpose of selling them to others. Some act as brokers, buying or selling for the account of others. Some deal solely or largely in newly issued securities. Others trade solely or largely in securities that have already been sold at least once since they were issued. But whether these institutions act as dealers or brokers and whether they handle newly or already issued securities, the term "merchant" is appropriate, because their functions are similar to those of commodity merchants who act as intermediaries between other buyers and sellers.

Many securities transactions are consummated without the use of any intermediary, for the buyer deals directly with the seller. A farmer may sell his mortgage directly to a bank which will hold it, a municipality may sell its bonds directly to local lenders, or the owner of an old security may sell it

directly to an acquaintance. In recent decades "private placements" have become highly important, as large lenders, especially the mammoth insurance companies, have purchased new issues directly from public utility companies, large industrial corporations, and governmental units. In a great many cases, however, the purchase and sale of both new and old securities are facilitated by securities merchants.

Investment Banks

An investment bank is an institution, usually either a partnership or a corporation, whose primary purpose is to market new issues of long-term securities, which may be either debts or shares of ownership. In some cases an investment bank acts alone in distributing a new security issue; in other cases two or more investment banks—sometimes scores of them—act together as a "syndicate." In marketing a new issue, an investment bank or a syndicate performs three principal functions: (1) investigation and purchase; (2) underwriting; and (3) selling. To illustrate these functions let us suppose that the Excelsior Machine Company wishes to sell a new issue of 100,000 shares of \$100-par-value preferred stock.

The first step the investment bank will take is to investigate the worth of the new shares; this will necessitate a study of the industry, of the company's position in the industry, of the assets and probable earning power of the company, and of the rights carried by the new shares. A reputable investment bank will refuse to sell a new issue if investigation shows that it is unlikely to be "a good buy." Several investment banks may investigate the issue simultaneously to see if they wish to bid for it. New issues are often awarded to an investment bank as a result of direct negotiation, without competitive bidding. One of the most controversial subjects in this field is whether or not competitive bidding for new issues should be required. The investment bank which is awarded the issue is often called "the originating house."

The next step is underwriting, by which is meant a guarantee that the issuer will receive on a specified date the pur-

chase price of the issue whether or not all the securities have been sold to the ultimate investors. This relieves the issuing firm of the risk that the sale of the securities may be delayed or that the sale price will be less than was anticipated. In some cases a single investment bank bears the entire risk of underwriting. More often, however, a number of them form a syndicate for this purpose and divide the risk. By such reciprocal sharing of new issues investment banks spread the risk and secure a more stable employment of their facilities.

The final step is selling the new issue. The underwriting syndicate may also perform the selling function, or a separate selling syndicate may be formed. The securities are often sold directly by the syndicate members through their main offices, branches, and traveling salesmen to individuals and financial institutions such as commercial and savings banks, investment trusts, and insurance companies. Frequently, however, at least some of the securities are sold to smaller securities dealers who retail them in different localities. An issue may be distributed throughout the country and in foreign countries by the main offices, branches, and traveling salesmen of the investment banks and by the smaller retail houses.

Investment banks receive compensation for their services by selling the securities to their ultimate buyers at a price higher than that paid to the issuing firm. For example, the issuing concern may receive \$96 a share, whereas the price to the final buyers is \$100 a share. The \$4 margin may be divided as follows: \$1 a share to the originating house for finding, investigating, and purchasing the issue; \$1 a share to the members of the underwriting syndicate; and \$2 a share to the members of the selling syndicate. The size of the margin varies considerably, depending on such factors as the amount of competition for the issue, the cost of investigation and purchasing, the risk involved in underwriting, and the estimated cost of selling.

Investment banks unquestionably perform a highly useful service in our economy, and they seem to have functioned honestly and efficiently in most cases. Nevertheless, they have at times exposed themselves to serious criticism. (1) In their zeal for profits they have on occasion, especially in boom

periods, sold securities at prices far in excess of any reasonable level. And in order to do this, some have failed to provide buyers with full information and have even made false or misleading statements. (2) It appears that they have sometimes refrained from competing with each other for an issue of securities, thereby enabling the originating house to reap monopoly profits out of an abnormally wide spread between sale and purchase prices. (3) In some cases the management of an investment bank has been so closely associated with the management of the corporation which is putting out a new issue that "arm's-length dealing" has been impossible. This situation permits at least two kinds of abuse: The investment bank may exploit the issuing corporation by paying it too low a price for the securities, or, in its efforts to help the corporation, the bank may sell to the public securities that are of questionable value. The state and federal laws that we shall study later were inspired by abuses of these types.

Securities Exchanges and Their Members

The market for newly issued securities is usually called a "primary market." Another essential part of our financial system is the "secondary market," in which "old" securities—stocks and bonds that are already issued and have been sold at least once—are bought and sold. Many types of institutions function in this secondary market. Among the most important are the securities exchanges and their members. These exchanges are often called stock exchanges, though they help to provide markets for bonds as well as for shares of ownership. Stock exchanges do not themselves deal in securities. "A stock exchange is an organization whose members deal in admitted securities in accordance with established rules. Its primary function is to bring together, through the medium of brokers, buyers and sellers of securities and thereby to enhance the marketability of stocks and bonds."¹ Most stock exchanges are unincorporated. Virtually every financially important country has at least one stock exchange; the United States has about 37. The New York Stock Exchange is by

¹ *Encyclopædia of the Social Sciences*, Macmillan, New York, 1937, vol. xiv, p. 397.

far the largest in this country, accounting for about 65 per cent of all securities transactions that occur through the nation's stock exchanges. The New York Curb Exchange accounts for another 20 per cent, leaving only 15 per cent to be divided among the other 35 exchanges. The New York Stock Exchange will be used to illustrate the functions of stock exchanges in general.

Though the New York Stock Exchange, like the others, does not itself deal in securities, it does perform a number of functions, among the most important of which are the following: (1) It provides physical facilities for trading. These include a building, the "floor" on which the trading occurs, communication and reporting facilities, and various other auxiliary services. (2) It formulates and administers rules governing the conduct of its various classes of members. (3) It determines which securities may and which may not be traded on the exchange; it admits new securities, expels others, and sets minimum standards of accounting and financial reporting for the firms whose securities are admitted to trading.

Trading on the exchange is limited exclusively to its members—to those who "have seats on the exchange." Others can trade on it only through these members. The New York Stock Exchange limits the number of its members to 1375. On the basis of their functions, the members are classified as follows: (1) Commission brokers who buy and sell for outside customers. (2) Floor brokers who execute orders for other members, especially for commission brokers. (3) Specialists in one or only a few securities who act as floor brokers for other brokers and as traders for their own account. (4) Floor traders who buy and sell only for their own account. (5) Odd-lot dealers who buy and sell lots of less than 100 shares; they deal with commission brokers and other exchange members. (6) Bond brokers and dealers who buy and sell bonds for customers and for their own account. We need not discuss this group further, for its functions are similar to others that we shall describe. (7) Inactive members. These members rarely appear on the exchange floor but retain their membership as a means of enhancing their prestige, as an investment,

or as a method of reducing the commissions paid on their transactions through other members.

Commission brokers are the most widely known members of stock exchanges, for they are the ones who execute orders for outsiders. Through their branch offices located in many cities these brokers make their services available in every part of the country. As a result of a "buy" order placed with his branch office in Seattle a commission broker may purchase stock on the floor of the exchange from another commission broker who received a "sell" order through his branch office in Mobile. Thus, the commission brokers execute on the floor of the exchange the buy and sell orders received from all parts of this country and from foreign countries, thereby creating one of the most highly organized and centralized markets to be found in the entire economic system.

Commission brokers perform many services for the buyers and sellers of securities. For the sellers they execute the sale, deliver the securities to the buyer's broker, collect the sale price, and remit the proceeds—less commissions, of course. If the seller has "sold short," i.e., has sold securities that he does not own or cannot deliver quickly, the broker borrows the necessary securities in order to make delivery to the purchaser. For the buyer of a security the broker executes the purchase, pays for the security, has its ownership transferred to the buyer, delivers the security to the buyer, and collects the purchase price plus a commission. If the buyer wishes to "buy on margin"—to pay only part of the purchase price and borrow the remainder—the broker arranges for the loan, pledging securities as collateral. As another phase of their service, brokers supply their customers with information and advice.

In many transactions on the floor of the exchange one commission broker deals directly with another commission broker. Smith's broker may execute his buy order by purchasing from Brown's broker, who has been ordered to sell. In other cases, however, a commission broker may deal with or through some other type of exchange member. If he is very busy, he may hire a floor broker to execute some of his orders on the floor. If the order is for an "odd lot" of securities—less than 100

shares—he may deal with an odd-lot dealer or broker. He may find it advantageous to deal with a member of the exchange who is a specialist in the particular security. Or he may buy from or sell to a floor trader who operates only for his own account. The brokers who do not deal with outsiders facilitate the operations of the commission brokers; moreover, the floor traders can serve the useful purpose of providing a continuous market, buying for their own account when they think the price of a security is going “too low” and selling for their own account when they think the price is going “too high.”

Stock exchanges and their members unquestionably fulfill a highly useful purpose in increasing the marketability and therefore the liquidity of securities. But they have not escaped serious criticism, some of which has been well founded. On occasion stock exchange officials have failed to use their full regulatory powers to force the members to act in the social interest, and some members have participated in various “rigging” operations which instead of stabilizing securities prices have actually produced and accentuated their fluctuations, in order to increase the speculative profits of certain members and their customers. The exchanges and their members too often facilitate general public participation in stock speculation of an unstabilizing character. Margin purchases and short sales are viewed with special suspicion. Government regulation has gone far toward eliminating gross abuses, but it has not succeeded in limiting speculation to the price-stabilizing varieties.

Over-the-Counter Securities Markets

Though about 6000 of the most important securities in this country are traded in on the various stock exchanges, more than ten times that number have not been admitted to trading on any exchange floor. These include most bank and insurance company stocks and many other securities, especially those of smaller corporations. These are traded in a branch of the secondary market loosely called the “over-the-counter market.” This has often been characterized as a nation-wide web

of telephone and telegraph wires, because brokers and dealers in various parts of the country use these methods of communication to secure information as to the supply of and demand for specific securities and to make purchases and sales for their own and their customers' accounts. This market is neither as highly organized nor as highly centralized as the markets provided by stock exchanges, but the brokers and dealers who operate in it serve a useful function in enhancing the marketability of securities that are not admitted to trading on the organized exchanges.

Public Auctions of Securities

Though less important than stock exchanges and the over-the-counter market, public auctions are the third part of the secondary market for securities. The most famous of these is the Auction Exchange in New York City, where weekly auctions are held.

Commercial Paper Houses

The types of securities merchants described in the preceding sections deal largely in stocks and longer-term debt instruments. But there are other types of institutions that perform comparable functions in increasing the marketability of short-term debt instruments. Two of the most important of these are commercial paper houses and bill brokers and dealers.

Commercial paper houses have functions similar to those of investment banks, except that they deal in short-term commercial paper in the form of promissory notes. Suppose, for example, that the Excelsior Machine Company of Waterbury, Connecticut, wishes to borrow \$10 million for six months to meet payrolls, purchase inventories, or meet other short-term needs. Because of the limited lending power or high interest rates at the local banks it may want to borrow in more favorable markets, but it may lack the facilities required for selling its paper economically. A commercial paper house can provide these facilities. It will investigate the company's credit standing and, if this is good, agree to sell the paper. In some cases

a commercial paper house acts as a broker, selling short-term promissory notes for the issuer's account and charging a small commission, usually about $\frac{1}{8}$ of 1 per cent, for the service. More often, however, it buys the issue outright and resells it at a slightly higher price to buyers located throughout the country or in foreign countries.

Commercial paper houses increase the mobility of credit in our independent unit-banking system. They secure a supply of short-term promissory notes in areas with a limited credit supply and high interest rates and sell them in areas where credit is more plentiful and interest rates are lower. They also tend to reduce the monopoly power of local banks over their borrowers. Their assistance is necessarily limited, however, to concerns that are at least medium-sized and that have a high enough credit standing to permit wide sale of their paper.

Bill Brokers and Dealers

Bill brokers and dealers perform functions similar to those of commercial paper houses, except that they increase the salability of acceptances—primarily bank acceptances—rather than promissory notes. Acting either as brokers or as dealers for their own account, they buy and sell acceptances in all parts of this country and in foreign countries.

TRUST FUNCTIONS

Trust functions are executed by institutions bearing various names. Commercial banks and savings banks often have trust departments, and institutions called “trust companies” often engage in commercial or savings bank activities. We shall confine our discussion here to the trust functions exercised by such institutions. Similar functions are frequently performed by individuals, especially by lawyers.

The essential basis of the trust function is confidence in the one who is trusted—confidence in both his honesty and his judgment, for the one acting in this capacity does so for the account of others. We shall use the term “trust function” to

include both (1) a trust in the narrow sense, and (2) agency. A trust is created when legal title is given to one person (the trustee) by a second person (the truster) for the benefit of a third party (the beneficiary). The truster and beneficiary may, of course, be the same person; for example, Smith as truster may entrust \$100,000 to a trust company to be managed for his own benefit. The trustee holds legal title to the things entrusted to it but is bound to administer them for the benefit of the beneficiary. An agency relationship is created when one person, called the "agent," is authorized by another, called the "principal," to represent and act for the principal in dealings with third persons. The main difference between a trust and an agency relationship is that the trustee holds legal title whereas an agent does not.

Trust Functions for Individuals

Institutions perform many trust functions for individuals. They hold and administer trusts set up by living trusters for themselves, their families, friends, and charitable institutions. They execute wills and manage estates. They act as administrators, guardians, and conservators under court appointments. Acting in these and other comparable fiduciary capacities for individuals, the institutions executing trust functions secure control of large amounts of wealth and account for a significant part of the buying and selling of securities.

In most cases the trustee is obligated to segregate and invest separately the funds in each trust account; hence the advantages of pooling funds are not secured. In a few cases, however, the funds in various trust accounts are pooled or commingled so as to permit wider diversification.

Trust Functions for Corporations

Trust institutions also carry on several types of fiduciary activity for corporations. (1) They act as trustee for bond issues in which the mortgage is held by a trustee for the benefit of the bondholders. Suppose that a corporation wishes to sell investors 10,000 bonds with a par value of \$1000 each,

the entire issue to be secured by a \$10-million first mortgage on the company's assets. A trust institution is likely to be selected to hold the mortgage for the benefit and protection of the bondholders. As trustee it is supposed to protect their interests and to enforce the safeguarding provisions of the mortgage. At times, however, trusts have been criticized for their laxity. (2) They act as registrar of stock and as transfer agent. In these capacities they keep official records of the stock ownership of corporations and record the transfer of title when shares of stock are sold. (3) They act as fiscal agents. In this capacity they act for corporations in collecting and expending funds. (4) They act as custodians of money and other valuable assets. (5) They act as depositories under corporate reorganization plans. For example, when the financial structure of a corporation is reorganized, a trustee receives the old securities from the various classes of stockholders and creditors and issues to them the securities to which they are entitled under the reorganization plan. (6) They act under court appointment as receivers in bankruptcy cases.

FINANCIAL INSTITUTIONS THAT BUY AND HOLD SECURITIES FOR THEIR OWN ACCOUNT

In the preceding sections of this chapter we have discussed two general types of financial institutions: (1) securities merchants, whose primary function is to facilitate the purchase and sale of securities, and (2) institutions that act in a fiduciary capacity, managing the funds of others and usually keeping separate portfolios for each trust account. We now come to a third and highly important type of financial institution—those that buy and hold securities for their own account. These institutions collect investable funds by selling shares of ownership, by borrowing from other institutions and from individuals, and by retaining earnings; and they use the accumulated funds to make loans of various maturities or to buy shares of ownership in other concerns. The balance sheets of these institutions are useful in analyzing both the sources

and the uses of the funds under their control. The liability side of their balance sheets shows the sources of the funds used; it shows the various types of debts issued and the amounts owed to the owners. The asset side shows the various types of claims purchased with the accumulated funds.

COMMERCIAL BANKS

In earlier chapters we emphasized the ability of commercial banks to increase and decrease the money supply by increasing and decreasing the quantity of checking deposits. But we also found that commercial banks are among the most important lending institutions. In addition to making "short-term self-liquidating commercial loans," they buy government obligations of all maturities, corporation bonds, both farm and urban real-estate mortgages, and various types of consumption debts. No analysis of the supply of investable funds would be complete without the inclusion of commercial banks. Yet it is necessary to emphasize again the unique position of these banks among financial institutions. Commercial banks are the only financial institutions that have the power to create new money (checking deposits) with which to make new loans or purchase other types of claims. The other institutions, lacking this money-creating power, can only acquire the money of others and use it to purchase shares of ownership or evidences of debt. In some cases, of course, they may borrow newly created money from commercial banks and use it to purchase other assets. But even in these cases they are acting merely as intermediaries and not as the original creators of new money.

SOURCES OF CONSUMER CREDIT

Though we have emphasized the importance of translating savings into actual spendings for new capital goods, we must also remember that the savings of some members of the community can be translated into a demand for output by

being lent to others who will spend them for consumer goods. Fluctuations in the amount of outstanding consumers' loans sometimes exert an important influence on the total demand for output, tending to swell the demand as consumers increase their purchases with new borrowings and to reduce demand as consumers pay off existing loans. Consumers receive credit in two principal ways: (1) by giving the sellers from whom they purchase goods or services a promise to pay for them in the future, and (2) by borrowing money from other individuals or institutions in order to purchase goods and services "for cash."

Consumer Credit Extended by Sellers of Goods and Services

Credit extended to consumers by sellers of goods and services may be evidenced by either charge accounts or promissory notes, and it may be paid off with a single payment or a series of installment payments. "A dollar down and a dollar a week" has become a familiar method of purchasing. It is estimated that at the end of January, 1947, consumers' debts to sellers of goods and services amounted to about \$5200 million, of which about \$3600 million was in the form of charge accounts and about \$1600 million in the form of installment sales credits. In order to make sales on credit and still be able to carry adequate inventories and finance their other needs, the sellers must secure funds by selling ownership shares, by purchasing on credit from their own suppliers, or by borrowing from others.

Loans to Consumers

In addition to securing credit from the sellers from whom they purchase, consumers often borrow money from other individuals and from financial institutions of several kinds. Some of these loans are retired with a single payment. For example, Brown may borrow \$100 from a bank and promise to pay the entire amount with interest in a single payment at the end of six months. Consumer borrowings of this type from commercial banks alone were estimated at about \$2100 mil-

lion at the end of January, 1947.² This type of loan is often unsatisfactory, however, because of the limited incomes of most consumer-borrowers and their consequent difficulty in retiring any substantial debt by a single lump-sum payment. To facilitate payment, many consumer loans require that the debt be retired by a series of installment payments. The amounts and sources of these loans outstanding in selected years are shown in Table 42.

TABLE 42. ESTIMATED CONSUMER INSTALLMENT LOANS OUTSTANDING³
(In millions of dollars)

Date	Total	Com- mercial Banks	Small- Loan Com- panies	In- dus- trial Banks	In- dus- trial Loan Com- panies	Credit Unions	Miscel- laneous Lenders	Insured Repair and Moderni- zation Loans
1929	\$ 652	\$ 43	\$263	\$219		\$ 32	\$ 95	—
1932	516	31	257	143		27	58	—
1940	2005	692	505	\$132	\$104	189	99	\$284
1946	2431	956	616	117	98	184	110	350
January, 1947	2492	995	620	122	102	185	110	358

Commercial Bank Installment Loans to Consumers

One of the most striking developments shown in this table is the rise in consumer installment loans by commercial banks. Only a few commercial banks had entered the personal loan field before 1929, but the number increased rapidly thereafter as the banks sought profitable new outlets for their funds and the need for additional and cheaper sources of consumer loans became more widely understood.⁴ Early in 1947 more than 12,000 banks had personal loan departments. Some of their loans were made for general consumer purposes, but many of

² For statistics relating to consumer credit, see *Federal Reserve Bulletin*, various issues.

³ Source: *Federal Reserve Bulletin*, March, 1947, p. 322.

⁴ For a good discussion of this trend, see Frieda Baird, "Commercial Bank Activity in Consumer Instalment Financing," *Federal Reserve Bulletin*, March, 1947, p. 264.

them were for financing specific purchases, such as automobiles, refrigerators, furniture, or home repairs and modernization.

Small-Loan Companies

Most of the small-loan companies in the consumer loan field are either personal finance companies or remedial loan associations. Personal finance companies are specialized institutions that secure funds by the sale of stock or by borrowing, often from commercial banks, and then make small loans (usually not more than \$500) to individuals. In more than 30 states and the District of Columbia they are subject to the Uniform Small Loan Law, which requires that they secure a license, post a bond, submit to inspection and regulation by the state banking department, and charge not more than a stated interest rate. This rate is usually $3\frac{1}{2}$ per cent per month on unpaid balances, though it is less in some states. Loans on unsecured notes signed by both husband and wife are becoming increasingly common, but specific security in the form of wage assignments or chattel mortgages on such articles as furniture and automobiles is still required in many cases.

Remedial loan associations are now less important than the personal finance companies. Most of them were established by philanthropists who were shocked by the excessively high rates of interest charged on small loans by loan sharks and pawnbrokers. Their capital funds were subscribed largely by public-spirited citizens, and their dividends are commonly limited to about 6 or 8 per cent.

Industrial Banks

The name "industrial banks" is likely to be misleading; it is justified only on the basis that most of the loans they make are to the industrial classes. They might better be called "small-loan banks." This group includes the Morris Plan banks, the first of which was established in Norfolk, Virginia, in 1910; the Wimsett System, the Citizens' System, the

Trustees' System, the Hood System, the Morgan Plan banks, and several others. These institutions secure funds in three principal ways: (1) by selling stock, (2) by retaining earnings, and (3) by accepting money on deposit from borrowers and savers. The funds so acquired are usually put out as relatively small loans, though some of the banks now make large loans as well. Payment is ordinarily made on the installment plan. Interest charges vary considerably, the real annual costs to borrowers ranging from 10 to 34 per cent, with 16 to 18 per cent being common.

Industrial Loan Companies

Among the most important industrial loan companies are the installment finance companies. These lend to both consumers and businesses. Most of their loans to consumers are on expensive durable goods, such as automobiles, refrigerators, electric stoves, furniture, and washing machines, by far the largest part of them being for the purchase of new or used automobiles. The operation of these companies can be clarified by the following example. Suppose that Jones buys a new \$1500 automobile and covers \$500 of the purchase price with cash or a traded-in car; he plans to borrow the remaining \$1000. An installment finance company will pay \$1000 to the seller of the car and take in return the buyer's promise to make from 12 to 24 monthly installment payments large enough in the aggregate to retire the loan and to cover interest charges that actually amount to from 9 to 15 per cent per year. Finance companies usually protect their claims by means of a conditional sales plan or a chattel mortgage. Under the first plan the buyer does not receive a clear title to the car until the entire debt is paid. Under the second, the title passes to the buyer at the time of sale, but the lender receives a chattel mortgage on the car. In a somewhat similar way a finance company lends to dealers, holding title to the merchandise until it is sold or accepting chattel mortgages on it. Finance companies secure the funds that they lend from three major sources: (1) From the sale of stock to the public and to business firms; in several cases the manufacturers of durable

goods have bought stock in companies financing installment purchases of their products. (2) From the sale of short-term or long-term debt instruments in the open market. (3) From loans secured directly from banks and other lending institutions.

Credit Unions

Credit unions are in effect cooperative banks modeled after the credit cooperatives of Europe. They secure funds by selling stock and collecting savings deposits from their members. They cater especially to small savers, selling stock for as little as \$5 a share and accepting savings deposits of as little as 25 cents a month. The funds accumulated in this way are lent to members. Credit unions were first introduced in this country in 1909 and until 1934 operated solely under state charters. In 1934, however, the Federal Credit Union Act was passed, permitting federal incorporation. In early 1947 there were nearly 9000 credit unions in this country, of which about 4000 had federal charters. The latter are supervised by the Federal Deposit Insurance Corporation.

Miscellaneous Lenders

Miscellaneous lenders to consumers are of several types, but two of the most important are pawnbrokers and individuals. Pawnbrokers advance funds in two ways: (1) by making loans and accepting as collateral valuable articles such as jewels, watches, musical instruments, furs, and even Phi Beta Kappa keys; and (2) by purchasing valuable articles and giving the seller an option of repurchasing them at a higher price within a specified period. For example, a pawnbroker might give you \$10 for your watch and allow you to redeem it for \$15 at any time within six months. This type of business is now subject to regulation, both to limit its charges and to control traffic in stolen goods, but it is not yet free from sharp practices.

Individuals who lend to consumers vary greatly. At one extreme are the kindly people who lend liberally, at low

interest rates, and largely for humanitarian reasons. At the other extreme are the unlicensed and illegal "loan sharks" who charge interest rates ranging from 100 per cent to more than 1000 per cent per year. The unfortunate person who becomes indebted to a loan shark may require years to rid himself of the debt and may face violence if he defaults on his payments.

INTEREST RATES ON CONSUMER CREDIT

Interest rates on consumer credit are typically high. A consumer is fortunate indeed if the total cost of a loan, including interest and other charges, is less than 10 per cent a year on the credit actually used; costs of 11 to 20 per cent are quite common, and costs of as much as 40 per cent are not rare. To some extent this is due to the monopolistic power of lenders, for a consumer's creditworthiness is usually not widely known and he has access to only a limited number of suppliers of credit. This factor was especially important a few decades ago when the number of lenders in this field was much smaller and lending practices were less well regulated. But it must be recognized that the costs of making and servicing small loans to consumers are high. The cost of credit investigation is large in proportion to a small loan, the risk of loss is frequently high—though less than is generally believed—and the collection and clerical costs involved in installment payments are large.

DISCOUNT COMPANIES

Though discount companies do not lend to consumers, they increase the availability of consumer credit by lending to businesses on the basis of their "receivables"—that is, on the notes and charge accounts owed by the customers. To illustrate the operation of a discount company let us assume that Taylor, a furniture dealer, is badly in need of funds with which to pay for inventory and meet his other obligations, and

that he has outstanding claims against his customers amounting to \$100,000. These may be evidenced by either charge accounts or promissory notes payable over a period of time. A discount company is unlikely to advance the full face value of Jones' claims against his customers, but it may advance as much as 80 per cent, or \$80,000. To protect its claims, it may use either the so-called "notification plan" or the "non-notification plan." Under the notification plan, Jones' debtors are notified that the claims against them have been sold and that they are to pay the discount company. The discount company returns to Jones any amount collected in excess of the loan, plus the charges on it. Under the non-notification plan, the debtors are not informed that the claims against them have been assigned to the discount company, Jones collects from them for the account of the discount company, and the company relies on Jones' honesty in forwarding the collected funds to it. For obvious reasons a borrowing merchant usually prefers the non-notification plan.

Interest charges on loans by discount companies are usually high, running around 18 per cent a year. Businesses therefore avoid loans of this type if they can secure adequate funds from banks or from open-market sources. Discount companies secure their funds primarily in three ways: (1) by selling shares of stock, (2) by borrowing directly from banks, and (3) by selling collateral trust notes in the open market. These collateral trust notes are promissory notes issued by the discount company and secured by the deposit of receivables with a trustee.

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Some Other Financial Institutions

THE SAVINGS BANK FUNCTION

AMONG THE MOST IMPORTANT INSTITUTIONS THAT COLLECT money savings from members of the community, pool them, and use them to purchase various types of securities are the institutions performing the savings bank function. We shall not discuss here the other functions, such as commercial banking, that are also executed by some of these institutions. Those who entrust their money to savings banks receive time or savings deposits in return. These are in effect debts of the savings banks which are payable only after the passage of a period of time; they are not payable on demand, as are checking deposits, and they are not generally circulated as money. They are evidences that money has been deposited and promises that money will be repaid later.¹ In the case of savings deposits, repayment by the bank is legally required within a stated period of time—usually 30, 60, or 90 days—after the depositor gives notice of his desire to withdraw his funds. Time deposits are those that are left with the bank for a period of time that is specified at the time the deposit is made.

¹ The statement that savings deposits are not money is probably too sweeping. It must be admitted that when a savings bank actually redeems its deposits on demand and does not insist on its right to pay only after a stated period of time, the savings or time deposits act as money.

This period rarely exceeds a year, though such deposits are often left for a longer time. In some cases, however, the banks do not insist on their legal right to delay payment but allow withdrawal practically on demand. Though this practice may be unobjectionable in periods of prosperity, it opens up dangerous possibilities of runs by depositors in times of distress. The owners of time and savings deposits usually receive interest from the banks. The general range of the interest rates

TABLE 43. TIME AND SAVINGS DEPOSITS IN THE UNITED STATES, JUNE 29, 1946²

Type of Institution	Number of Banks	Amount of Time and Savings Deposits (In millions of dollars)
Mutual savings banks	541	\$16,850
Postal savings banks	8,089 ^a	3,120
Others (mostly commercial banks)	14,026	32,536
Total	22,656	\$52,506

^a Offices and branch stations.

in 1947 was from 1 to 2 ½ per cent, but it was higher in earlier periods when bank assets yielded higher returns.

We shall discuss here the savings bank function as carried out by three general types of institutions: (1) mutual savings banks, (2) postal savings banks, and (3) others, mostly the savings departments of commercial banks. The amount of funds gathered by these institutions is shown in Table 43. Institutions that control \$52,500 million of investable funds cannot fail to be an important element of our financial system.

Mutual Savings Banks

Mutual savings banks are cooperative banks; they issue no capital stock and are owned by, and operated for the benefit of, their depositors. Each is governed by its board of trustees, which is usually self-perpetuating. They were originally founded to promote thrift among small savers and to

² *Federal Reserve Bulletin*, March, 1947, pp. 292-293; *Annual Report of the Postmaster General*, 1946, p. 90.

provide safety as well as income for small savings. This purpose is still shown in their operations. Most of them accept deposits only from individuals, funds from corporations being refused, and they usually place a maximum limit on the amount of deposits held for each individual. This limit is ordinarily in the range of \$2500 to \$4000, exclusive of accumulated interest. The large volume of funds controlled by mutual savings banks—nearly \$17 billion in June, 1946—represents deposits by considerably more than 15 million individuals. Most of these banks are located on the Atlantic seaboard and in New England.

TABLE 44. ASSETS OF 190 MASSACHUSETTS MUTUAL SAVINGS BANKS, OCTOBER 31, 1945³

Type of Assets	Value of Assets (In millions of dollars)	Per Cent of Total Assets
U. S. government securities, direct and fully guaranteed	\$1905	61.0
Loans on real estate	787	25.2
Railroad bonds and notes	112	3.6
Gas, electric, and water company bonds	69	2.2
Bank and trust company stocks	57	1.8
Telephone company bonds	39	1.2
Other assets	152	5.0
Total assets	\$3121	100.0

In line with their purpose of providing safety as well as income to their depositors, mutual savings banks avoid buying assets that are known to be highly risky, and they usually make but few short-term loans. They concentrate on government securities, real-estate mortgages, and the higher-grade public utility and industrial bonds. This is shown by the October, 1945, statement of the 190 mutual savings banks in Massachusetts that is shown in Table 44. Loans on real estate represented a much larger share of their assets before the great rise in the federal debt.

Approximately a third of these banks—they hold about two-thirds of all deposits in mutual savings banks—are in-

³ *Report of the Massachusetts Commissioner of Banks, 1945, Part I, p. viii.*

sured by the Federal Deposit Insurance Corporation. Many of the others have their own guaranty fund plans.

Postal Savings Banks

After nearly 40 years of agitation, a postal savings bank system was established in this country in 1910. Among several advantages urged for the system were: (1) It would stimulate saving by people in moderate circumstances, especially by those who distrusted other financial institutions. (2) It would provide a safe repository for savings and prevent hoarding. (3) It was needed to give assistance in the agricultural South and West, where existing facilities for saving were in many cases inadequate, poorly distributed, and unsafe.

Postal savings banks are, in effect, departments of post offices which operate as branch offices for a board of trustees consisting of the Postmaster General, the Secretary of the Treasury, and the Attorney General. Service to the small individual depositor is emphasized. Deposits are accepted only from individuals, no person may have more than one postal savings account, except in unusual cases no deposit account may exceed \$2500 (exclusive of interest), and deposits of as little as \$1 are accepted. To facilitate the accumulation of a dollar the postal savings offices furnish free postal savings cards to which may be affixed 10-cent postal savings stamps. The depositors receive interest at the rate of 2 per cent a year, though no interest is paid on amounts left for less than a year. Virtually all the money deposited in these banks is now invested in securities of the federal government, though small working balances are placed in depository commercial banks. Of the system's \$3120 million of assets in June, 1946, all but \$5,279,000 were in the form of federal securities. Before World War II, however, a much larger proportion of the assets were in the form of deposits with banks, which paid interest to the postal savings system at a rate slightly above 2 per cent.

Table 45 shows the scope and growth of the postal savings banks. After an early period of growth, their business virtually ceased to rise during the decade of the 'twenties. A 2 per cent return and a promise of safety were not very attractive

to savers in a period of high confidence in securities and other financial institutions. But deposits surged into the system during 1930-33 as private financial institutions failed in droves and people came to distrust many of those that remained in business. The number of depositors in postal savings rose by nearly 2 million and deposit balances increased by more than \$1 billion. The rate of growth declined again as confidence in the banking system was restored in 1933, but it rose rapidly during the period of high prosperity induced by World War II. This rise was accentuated by the

TABLE 45. POSTAL SAVINGS BANKS⁴

Date (June 30)	Number of Offices and Branch Stations in Operation	Number of Depositors (000)	Deposits Held (In millions of dollars)	Balance per Depositor (Exclusive of Interest)
1911	400	12	\$ 1	\$ 57
1917	7161	675	132	196
1920	6314	509	157	309
1929	6770	417	154	369
1933	7888	2342	1187	507
1941	8038	2883	1304	452
1946	8089	4136	3120	754

decrease in interest rates in other types of savings institutions. Table 45 shows that in 1946 about 4,136,000 individuals had \$3120 million on deposit with the postal savings banks.

Private financial institutions have often objected to the operation of a postal savings system by the government, alleging that it is unnecessary and constitutes unfair competition. One might admit that the loss of these safe depositories would not constitute a serious hardship during prosperity periods, but he could hardly agree that they are not highly useful during a time of widespread bank failures. In fact, it can be argued that they assist even private financial institutions during such periods by reducing the hoarding of coin and currency. For example, deposits with the postal savings banks rose by \$1033 million between June, 1929, and June, 1933, and during the same period these banks were able to

⁴ *Annual Report of the Postmaster General, 1946*, pp. 90-91.

redeposit with other banks large sums that might otherwise have disappeared into hoards of coin and currency.

Other Institutions Performing Savings Bank Functions

Most of the other time and savings deposits are held by the savings departments of commercial banks. But before discussing them, we should mention stock savings banks. These function in much the same way as mutual savings banks, but they are owned by their stockholders rather than by their depositors. Both the number of these institutions and the amount of savings deposits held by them are rather small.

TABLE 46. TIME AND SAVINGS DEPOSITS AT COMMERCIAL BANKS⁵
(In millions of dollars)

End of Year	All Commercial Banks	Member Banks	Non-Member Banks
1938	\$14,862	\$11,369	\$3498
1941	15,944	12,347	3605
1946	33,850	27,190	6650

The volume of time and savings deposits held by the savings departments of commercial banks is shown in Table 46. We have already seen that mutual savings and postal savings banks tend to specialize in the collection of savings from the relatively small individual saver, accepting deposits only from individuals and limiting the amount deposited by any one person. It is much more difficult to generalize about the practices of the savings departments of commercial banks. Virtually all of them welcome small savings depositors and offer them services comparable to those of mutual savings banks. But some of them, especially the larger banks, also accept time deposits from corporations, other business firms, educational institutions, and governmental units. For example, the Chase National Bank may accept a time deposit of several million dollars from a corporation that has money (usually checking deposits) that it does not need for some time.

⁵ *Federal Reserve Bulletin*, March, 1947, pp. 292-293.

It is impossible to generalize about the types of assets purchased with the time and savings deposits accumulated by the commercial banks, for these banks do not segregate the assets behind time and savings deposits from those behind demand deposits and other liabilities. Some have criticized this practice and have insisted that such segregation should be required for two reasons: (1) The banks should hold only the safest kinds of assets behind the savings of small depositors, and (2) savings depositors are likely to suffer more than demand depositors in a period of bank runs. Banks may dispose of most of their good assets to meet the claims of their demand depositors, leaving only the poorer assets to meet the delayed claims of their time and savings depositors.

LIFE INSURANCE COMPANIES

Life insurance companies engage in two principal types of business: (1) they insure lives, and (2) they sell annuities. Both of these functions involve the collection of great sums of money from millions of people, and much of this money is used by the insurance companies to buy securities. In insuring lives, the companies typically do not charge an annual premium that is just sufficient to cover operating expenses and insurance outpayments during that year. If they did, each policyholder would pay premiums that increased in amount as he grew older and the probability of his death during the year increased. For example, the purchaser of a \$1000 policy might pay about \$7 a year when he was 30 years old, about \$11 when he was 45, about \$22 when he was 55, and about \$38 when he was 64. To avoid this rise in premiums, most policies provide for collections during their earlier years that are greater than would be necessary to meet operating expenses and insurance outpayments during those years, the excess amounts plus earnings on them being used to keep down premiums in later years. For example, a man of 30 may buy a \$1000 "straight life" or "ordinary life" policy for which he promises to pay \$19 a year until he dies. He pays far more than the actuarial cost of insuring his life while he is young,

the excess amount being invested and used to meet the higher actuarial costs as he grows older. In effect, he saves in his early years to meet the increased cost of insuring his life when he is older. Some other types of insurance involve even more saving. For instance, a "single payment" policy requires a single lump-sum payment, which, together with the earnings on it, covers the entire cost of the insurance. A "twenty-payment life" policy requires payments during 20 years that are sufficient, together with the earnings on them, to meet the entire cost of the insurance. It is largely because of policies of

TABLE 47. ASSETS OF LIFE INSURANCE COMPANIES IN THE UNITED STATES⁶
(In millions of dollars)

End of Year	Number of Companies	Total Admitted Assets	Bonds Owned	Real-Estate Mortgages Owned	Premium Notes and Loans
1900	76	\$ 1,742	\$ 7	\$ 501	\$ 88
1920	272	7,320	3,589	2175	859
1930	352	18,880	6,352	7577	2807
1940	305	30,802	16,983	5958	3091
1944	305	41,054	28,537	6675	2134

these types that performance of the life insurance function involves the accumulation of such a huge volume of investable funds.

Annuities are relatively simple in principle although complex in detail. An annuity company collects funds, either in a lump sum or in installment payments, invests these funds in income-earning assets, and then after the date selected by the annuitant pays him a fixed annual income based on (1) the amount of funds accumulated in his account, and (2) his average life expectancy. The companies engaged in the annuity business control a large volume of investable funds.

Table 47 shows the growth of assets held by life insurance companies in the United States. By the end of 1944 the total admitted assets of these institutions had risen to more than \$41 billion. Nearly 70 per cent of these assets were in the

⁶ *Statistical Abstract of the United States, 1946*, pp. 440-441. These statistics cover only the legal-reserve life insurance companies. Fraternal insurance companies with a few hundred millions of assets are excluded.

form of bonds, in which the bonds of the federal government loomed large though bonds of other governmental units and of many kinds of business firms were also included. Real-estate mortgages, both farm and urban, were next in importance, making up about 16 per cent of the total. Insurance companies have long been one of the principal sources of real-estate credit. Loans to policyholders for premium payments and other purposes were next in importance. Life insurance companies in this country do not ordinarily buy stocks, but in recent years they have tended, especially the very large ones, to invest directly in residential real estate. For example, the Metropolitan Life Insurance Company owns a number of large apartment developments.

Fire, marine, and casualty insurance companies also accumulate funds and use them to buy securities, but their total assets are far less than those of life insurance companies.

INVESTMENT TRUSTS

Investment trusts, sometimes called investment companies, are incorporated or unincorporated institutions that collect funds by selling their own stocks or bonds, or both, and use the funds secured in this way to buy a diversified list of stocks or bonds, or both. They do not ordinarily make short-term loans. They are called trusts because their assets are often held by a trustee to protect the interests of those who have purchased their securities.

Investment trusts did not become an important part of our financial structure until the nineteen-twenties. No more than 40 had been established in this country before 1921, but they grew rapidly after that time, especially during the boom later in that decade.⁷ About 140 were created from 1921 through 1926, 140 in 1927, 186 in 1928, 265 in 1929, 131 in 1930, and about 300 during 1931-36. Their total assets rose from about

⁷ See Emanuel Stein, *Government and the Investor*, Farrar & Rinehart, New York, 1941, p. 186.

\$1 billion at the end of 1926 to more than \$7 billion at the end of 1929. About 360 of these institutions, with total assets of about \$3750 million, were still in operation in 1946.

Investment trusts vary greatly as to the types of assets purchased. Some stress diversification over a wide area, purchasing both stocks and bonds in many corporations connected with many industries. Some purchase only stocks. A few concentrate on bonds. Some specialize in holding the securities of a single industry, such as insurance company stocks, bank stocks, or electric utilities stocks. These trusts also differ greatly as to the types of their own securities that are issued. Some issue only one—common stock—so each shareholder is in effect a pro rata claimant against the asset value and earnings of the trust's diversified portfolio. Others issue not only common stock but also preferred stock and even bonds. In this case the risk of holding common stock is greatly increased, because the holders of the bonds and preferred stocks are given fixed or semi-fixed prior claims against both assets and earnings. The risk is especially great when the trust's assets are composed largely of common stocks, which are likely to fluctuate widely in value.

A well-managed investment trust can unquestionably perform a useful function in investigating, purchasing, and holding securities; in providing diversification and reducing risk; in dividing the remaining risk unequally among various types of investors; and in increasing liquidity. It is unfortunate, therefore, that some investment trusts, especially some of those formed during the speculative hysteria of the late 'twenties, abused their powers. Some of them specialized in stock speculation; and some used "other people's money" primarily for the benefit of their promoters, who were investment banks with securities to sell or brokers who wanted the commissions to be earned on the trusts' purchases and sales through them. Excessive promotion and management fees were far from unknown. It was largely because of abuses of these types that Congress passed the Investment Company Act of 1940, placing investment trusts under the regulation of the Securities and Exchange Commission.

BUILDING AND LOAN ASSOCIATIONS

Building and loan associations, or savings and loan associations as they are often called, collect funds and use them primarily to make loans on urban residential real estate. In the beginning most of these institutions were temporary co-operative home-builders' clubs. A group of people—perhaps 200—would form a temporary association and agree to pay into it \$20 a month, the funds collected in this way to be lent to members to finance the purchase or construction of houses. Borrowers gave the associations mortgages on their homes and paid them off in monthly installments. An asso-

TABLE 48. SAVINGS AND LOAN ASSOCIATIONS IN THE UNITED STATES⁸

Year	Number of Associations	Total Assets (In millions of dollars)	Total Mortgage Loans (In millions of dollars)
1922	10,009	\$3343	\$3009
1929	12,342	8695	7791
1933	10,596	7018	5559
1944	6,279	7458	4983

ciation would be dissolved when all its members had homes and the mortgages were completely retired. Though most building and loan associations are still operated on the mutual plan, the modern institutions differ from the early ones in at least two important respects: (1) They are no longer temporary, they are permanent—an association continues to operate even though all its original members withdraw. And (2) they collect savings from people who have no intention of borrowing to build or buy a home, as well as from those who are or expect to become borrowers. In some cases a person who entrusts his savings to an association receives a deposit credit comparable to a time or savings deposit at a savings bank. More often, however, the savers purchase shares in the association, paying for them in installments over a period of time.

Table 48 shows the number and principal assets of savings

⁸ *Statistical Abstract of the United States*, 1946, p. 420.

and loan associations in this country. After a period of rapid growth during the prosperous nineteen-twenties, the associations suffered seriously as real-estate values fell sharply and defaults on mortgages became widespread during the depression. Not until the prosperity that came with and followed World War II did their assets again rise rapidly. Before 1933 all these associations operated under state charters, but a law of that year authorized the establishment of federal savings and loan associations which operate under charters granted by the Federal Home Loan Bank Administration. At the end of 1946 there were 1471 federal savings and loan associations with total assets of \$4672 million. We shall discuss later the assistance given by the government to these and other institutions that lend on real estate.

FEDERAL FINANCIAL INSTITUTIONS

All the financial institutions studied up to this point, except the postal savings banks, are "private" in the sense that they are owned and managed by individuals or groups of individuals rather than by governmental units. But one of the most striking developments of the past 40 years, especially in the period since 1932, has been the rise of financial institutions sponsored by the federal government. Some of these are wholly owned and operated by the government itself; others are owned partially by it and partially by other credit institutions or by borrowers. Their control is similarly divided. These institutions perform many functions; they have lent billions of dollars, they have insured the safety of billions of dollars' worth of loans by other institutions, they have participated in the risks of many other loans, they insure the safety of savings deposited in several types of private institutions, and they stand ready to lend on many types of assets to institutions in need of funds. The influence of these activities on other financial institutions and financial practices has already been tremendous, and it promises to be even greater in the future.

In the remaining pages of this chapter we shall describe

briefly some of the principal federal financial institutions and outline their functions. The reader is warned, however, that these institutions are highly complex, especially in the details of their operations, and that we shall in some cases oversimplify in order to make them more comprehensible.

FEDERAL AGRICULTURAL CREDIT INSTITUTIONS

Federal Land Banks and National Farm Loan Associations

The growth of federal lending institutions began with the passage of the Federal Farm Loan Act in 1916. For many years groups of farmers, especially those in the South and West, had been critical of existing farm mortgage credit facilities. They complained: (1) That private individuals and institutions would not lend for long enough terms; they usually refused to lend for more than five or ten years—a period too short to enable a farmer to pay for his land. (2) That existing institutions did not provide sufficient mobility of credit from the large cities, especially from the eastern seaboard, to the rural credit-deficit areas, thereby retarding the development of rural areas. This complaint was heard most frequently in the South, the Midwest, and the West. (3) That interest rates on farm mortgages were too high. The Federal Farm Loan Act of 1916 attempted to remedy the situation by establishing a nation-wide system of farmers' mortgage-credit cooperatives with federal sponsorship and assistance. This system includes two types of institutions: national farm loan associations and Federal Land banks.

There are now about 5000 national farm loan associations spread throughout the rural areas of the country. They are chartered and supervised by the Farm Credit Administration in Washington. Each association is a local cooperative made up of 10 or more persons who own or are about to become owners of land qualified as security for a Federal Land bank loan. No member of an association may borrow more than \$50,000, and each must subscribe for stock in the association equal to 5 per cent of the amount of his loan. Each national

farm loan association performs several functions, among them being: (1) To receive advances from the Federal Land bank of the district and to distribute these advances to its member-borrowers. (2) To endorse mortgages given by its shareholders to the Federal Land bank. This is an important function; the members of an association in effect guarantee each other's mortgages by pledging their shares in the association, though their liability is limited to the amount of their shares. (3) To exercise various other collection, supervisory, and promotional functions.

The funds lent on farm mortgages through the national farm loan associations are secured from the Federal Land banks. Here again we encounter the magic number "12"; the country is divided into 12 districts, each with its Federal Land bank. The capital stock of each bank is divided between the federal government and the member national farm loan associations in the district.⁹ For many years the larger part of the banks' stock was owned by the government, but most of this has been retired so the banks are now owned almost entirely by their member national farm loan associations. Only a small part of the funds lent is derived from the sale of bank stock; most is secured by the banks through the sale of their own debt instruments, which are called "consolidated federal farm loan bonds." These are sold throughout the country, especially in the credit-exporting areas. The rate of interest charged by the banks on new loans may not exceed by more than 1 per cent the rate borne by their last bond issue; the differential has at times been less. Uniform interest rates are charged throughout the country regardless of the prevailing rates at other lending institutions.

The Federal Farm Mortgage Corporation

The Federal Land banks and national farm loan associations are permanent institutions and are not designed to offer risky emergency relief; their purpose is to make "sound" loans

⁹ In some cases the banks make direct loans to farmers instead of lending through associations. Direct borrowers must subscribe to the bank's stock in an amount equal to 5 per cent of the loan obtained.

on a "businesslike basis." But when farm prices fell rapidly during the great depression and thousands of farmers defaulted on their mortgages, with many more threatening to do so, there arose a feeling that some source of relief loans was highly desirable to help not only debtor-farmers but also lending institutions that were heavily laden with farm mortgages of doubtful quality. The Federal Farm Mortgage Corporation was formed in 1934 to meet this need.¹⁰ The funds of the FFMC were secured in two principal ways: (1) from a \$200-million government subscription to its capital stock, and (2) from the sale of Federal Farm Mortgage Corporation bonds, which are fully and unconditionally guaranteed by the federal government. These funds are used to make both first- and second-mortgage loans on farm real estate which are too risky for the Federal Land banks. Other mortgage holders have received a large part of the funds lent by the FFMC, for these funds were used by farmers to pay off mortgages that were already in default or that threatened to become so.

Lenders on Farm Mortgages

Table 49 shows the importance of the Federal Land banks and the Federal Farm Mortgage Corporation as lenders on farm mortgages. The Federal Land banks held 12 per cent of all outstanding farm mortgages in 1929, 24 per cent in 1935, and 27 per cent in 1940. These banks and the FFMC together hold about 37 per cent of all farm mortgages. This ratio varies considerably in the different agricultural regions, being lower in the East where private credit is cheaper and more plentiful, and much larger in the high-interest, scarce-credit areas of the South and Midwest.

Federal Intermediate Credit Banks

For many years, especially during the period of credit restriction and bank failures that began in 1920, farmers com-

¹⁰ From May, 1933, until the establishment of the FFMC in January, 1934, this need was partially met by Land Bank Commissioner loans made out of a \$200-million fund appropriated by Congress.

plained that short-term and intermediate-term credit facilities were inadequate. In response to this complaint, 12 Federal Intermediate Credit banks were established, one in each of the 12 Land bank districts. These institutions do not themselves make loans directly to farmers; they attempt to increase the availability of short-term and intermediate-term credit to agriculture by standing ready to make loans to, or to discount paper for, institutions that do lend to farmers. Prior to 1933 most of their advances were made to commercial banks, livestock loan companies, and other similar financing

TABLE 49. ESTIMATED TOTAL FARM MORTGAGE DEBT, AND AMOUNTS HELD BY
PRINCIPAL LENDING GROUPS¹¹
(In millions of dollars)

Beginning of Year	Total Farm Mortgages Outstand- ing	Federal Land Bank Holdings	Federal Farm Mortgage Corporation Holdings	Life Insurance Company Holdings	Com- mercial Bank Holdings	Holdings by In- dividuals and Others
1910	\$3208	—	—	\$ 387	\$ 406	\$2415
1920	8449	\$ 296	—	975	1204	4973
1929	9757	1183	—	2138	1047	5388
1935	7785	1885	\$617	1259	499	3526
1940	6910	1895	689	883	534	2909

institutions. Since 1933, however, they have also lent to two other types of federally sponsored institutions—production credit associations and Banks for Cooperatives. Most of the funds lent by the 12 Federal Intermediate Credit banks are secured by selling in the money markets debenture bonds backed by farmers' promissory notes which have been taken in return for funds advanced to the institutions that lend to farmers.

Production Credit Corporations and Production Credit Associations

After 1929, as farm prices and farm incomes fell, as banks in agricultural areas failed in great numbers, and as loans became increasingly hard to get, farm groups again com-

¹¹ Source: D. C. Horton, H. C. Larsen, and N. J. Wall, *Farm Mortgage Credit Facilities in the United States*, U. S. Department of Agriculture, Washington, 1942, p. 12.

plained that existing facilities for short-term and intermediate-term credit were inadequate. Though commercial banks and other private lending institutions could borrow from or discount paper at the Federal Intermediate Credit banks, they were often unwilling to assume the risk of lending. And in some areas only a few banks were left. The production credit system was established in 1933 to remedy this alleged inadequacy by making loans directly to farmers. This system includes two types of institutions: (1) production credit associations, and (2) Production Credit Corporations.

The local production credit associations are somewhat similar to the national farm loan associations, but their purpose is to facilitate the flow of short-term and intermediate-term credit. There are now about 505 of these associations, each including 10 or more farmers or stockmen in an allotted territory. Loans are made for such purposes as the production, harvesting, and marketing of crops; the breeding, fattening, and marketing of livestock; poultry raising; and other short-term and intermediate-term projects. The funds lent by the associations are acquired chiefly in two ways: (1) by selling stock—borrowers from an association must buy stock in it amounting to 5 per cent of their loans, and other stock is sold to the regional Production Credit Corporation; and (2) by borrowing from or discounting paper with the Federal Intermediate Credit banks. On June 30, 1946, the 505 production credit associations had secured from these sources the following amounts:

Sales of stock to members	\$ 36,000,000
Sales of stock to Production Credit Corporations	48,000,000
Borrowings from Federal Intermediate Credit banks	<u>297,000,000</u>
	\$381,000,000

Their outstanding loans to farmers amounted to about \$304 million.

There are 12 regional Production Credit Corporations, one in each farm credit district. The general purpose of these institutions is to assist local production credit associations in serving their respective territories. To this end they provide

promotional aids, supervision, and subscriptions to the capital of the local associations. The Production Credit Corporations themselves have a total capital of about \$100 million, all of which was subscribed by the federal government.

Banks for Cooperatives

For many years it has been the established policy of the federal government to encourage the formation of both marketing and purchasing cooperatives among farmers. Farmers' cooperatives have benefited from the promotional activities of the Department of Agriculture, immunity from the anti-trust laws, certain tax advantages, and federal assistance in securing credit. Prior to 1933, federal assistance to the financing of cooperatives was given mostly through the Federal Intermediate Credit banks and the short-lived Federal Farm Board, but in that year a new system of 13 banks was formed for the purpose. This system includes the Central Bank for Cooperatives, which is located in Washington, and 12 district banks, one in each of the farm credit districts. In general, the Central Bank for Cooperatives makes loans to cooperatives that operate in more than one farm credit district, as well as other loans that are too large for the 12 district banks; the district banks make the smaller loans. This system provides complete credit facilities for cooperatives—loans on commodities, loans for operating capital, and loans to finance long-term facilities. Interest rates are relatively low and are uniform throughout the country. In early 1947 they were 1 $\frac{1}{2}$ per cent on commodity loans, 2 $\frac{1}{2}$ per cent on loans for operating capital, and 3 $\frac{1}{2}$ per cent on facility loans.

The funds lent by the Banks for Cooperatives are secured from two sources: The first is the sale of their stock to the federal government and to cooperatives, the latter subscribing in an amount equal to 5 per cent of their borrowings. In 1946 capital subscriptions by the federal government amounted to about \$178,500,000, and those of cooperatives to about \$6,500,000. The second source of funds is borrowings from the Federal Intermediate Credit banks.

Other Federal Credit Facilities for Agriculture

Several other federal agencies lend to farmers or to institutions directly serving farmers. Among these are: (1) the Rural Electrification Administration, (2) the Farmers Home Administration, and (3) the Commodity Credit Corporation.

The Rural Electrification Administration makes self-liquidating loans covering 100 per cent of the cost of constructing electric facilities to serve rural people. These loans are made not directly to individual farmers, but to cooperatives or other concerns engaged in rural electrification programs. At the end of 1946 the outstanding loans by the REA amounted to about \$530 million. Most of these funds had been borrowed by the REA from the Reconstruction Finance Corporation.

The Farmers Home Administration provides credit only for farmers who are unable to obtain the loans they need at prevailing rates and terms in their communities from banks, cooperative lending agencies, or other responsible sources. This agency's emphasis is on rehabilitation and assistance for smaller farmers. The FHA makes both long-term and short-term loans. It makes loans for terms up to 40 years at 3 ½ per cent interest to buy, repair, improve, or enlarge farms, and it insures similar privately made loans for the same purposes. It also makes production and subsistence loans up to \$3500 for buying livestock, seed, fertilizer, farm equipment, supplies, and other farm needs; for refinancing indebtedness; and for family subsistence. These loans run for periods up to 5 years, and they bear 5 per cent interest. Funds for these long-term and short-term loans are provided by Congress.

The purpose of the Commodity Credit Corporation, which was established in 1933, is to make loans to farmers, or to guarantee such loans made by others, as a means of supporting the prices of farm products. The Corporation also buys and stores farm products for the same purpose. The loans it makes or guarantees are non-recourse loans. For example, if a farmer borrows \$1.60 a bushel on his wheat, he has the option of paying the loan and claiming the wheat or of allowing the Corporation to keep the wheat. In this way the Corporation prevents the prices the farmer realizes from falling below the

amount that it will lend on eligible products. Since these loans are obviously risky, this agency secures its funds from government capital subscriptions and from the sale of no more than \$4750 million of bonds fully and unconditionally guaranteed by the federal government.

The Importance of Federal Loans to Agriculture

Table 50 shows the amount of outstanding loans by the

TABLE 50. OUTSTANDING LOANS BY FEDERAL AGENCIES FOR AGRICULTURAL PURPOSES, DECEMBER 31, 1946¹²

Lending Agency	Outstanding Loans (In millions of dollars)
Federal Land banks	\$986
Federal Farm Mortgage Corporation	149
Federal Intermediate Credit banks	273
Banks for Cooperatives	232
Commodity Credit Corporation	120
Rural Electrification Administration	528
Farmers Home Corporation	588
All other	9
Total	\$2884

various federal agencies for agricultural purposes at the end of 1946. It is impossible to predict the trend of federal credit for agriculture when the great surge of farm prosperity induced by the war comes to an end.

The Administrative Control of Federal Agricultural Credit Institutions

Control of the various federal agricultural credit institutions was widely scattered through the federal government prior to 1933, but since that time the trend has been toward centralization and coordination. The Rural Electrification Administration, the Farmers Home Administration, and the Commodity Credit Corporation are still separate agencies under the Department of Agriculture. All the others are under

¹² *Federal Reserve Bulletin*, March, 1947, p. 308.

the control of the Farm Credit Administration. Fig. 13 shows the organization of the Farm Credit Administration in Washington, which is made up of a governor and four commis-

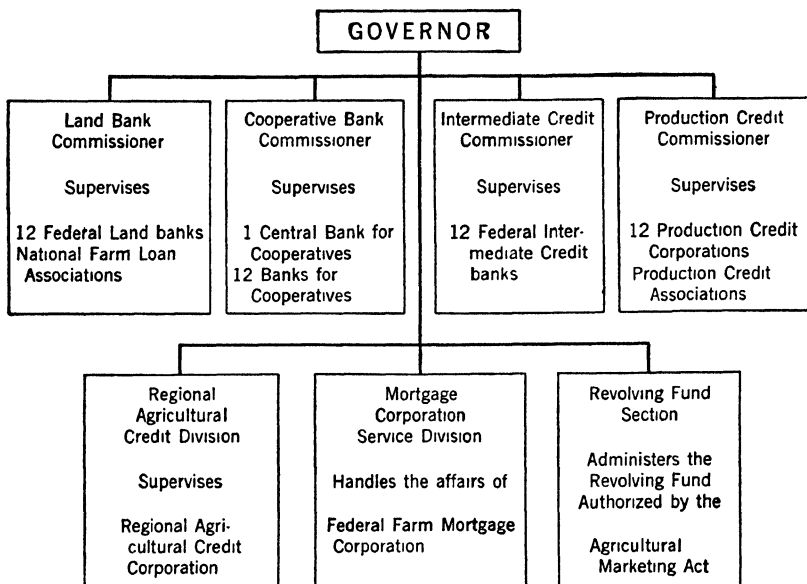


FIG. 13. *Federal Farm Credit Administration in Washington.*

sioners. Fig. 14 shows the organization of each of the 12 Farm Credit Districts.

FEDERAL FINANCIAL INSTITUTIONS IN THE URBAN MORTGAGE FIELD

Not until the 1930's, during the great depression, did the federal government enter the field of urban mortgage finance. The situation in urban housing was desperate; new construction and even repair work were at a virtual standstill, real-estate prices were falling rapidly, hundreds of thousands of home mortgages were in default and many other defaults were imminent, foreclosure sales were numerous, and financial in-

stitutions with large mortgage holdings were in dire straits, many of them already bankrupt and others in danger of becoming so. It was felt that federal financial assistance would serve the multiple purpose of preventing homeowners from losing their homes, assisting financial institutions that were heavily laden with illiquid mortgages of poor quality, reviving

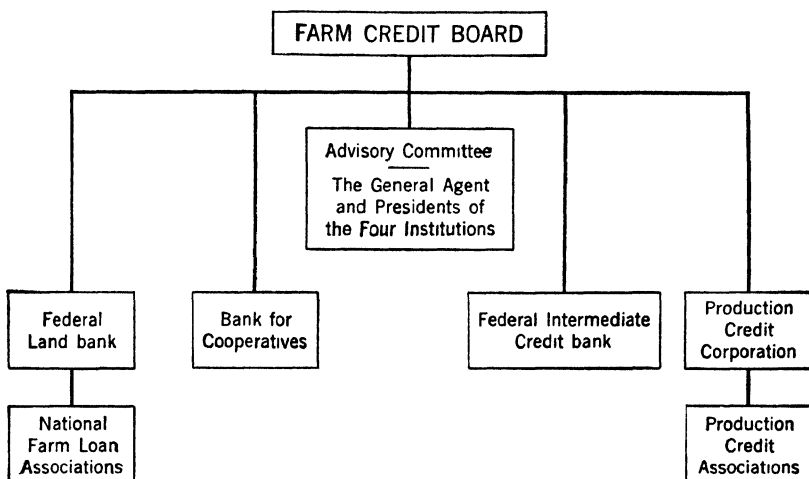


FIG. 14. *Organization in Each of the Twelve Farm Credit Districts.*

the flow of loans to finance new construction, encouraging business recovery by increasing employment in the construction industry, and providing decent housing for the "ill-housed third of a nation."

The Federal Home Loan Bank Administration

The Federal Home Loan Bank Administration is a government agency in Washington which supervises the following federally sponsored financial institutions in the field of urban real-estate finance: (1) the Home Owners Loan Corporation; (2) federal savings and loan associations, which are chartered and supervised by the FHLBA; (3) the 11 Federal Home Loan banks; and (4) the Federal Savings and Loan Insurance Corporation.

The Home Owners Loan Corporation, which was formed in 1933, was one of the first federal financial institutions in the urban mortgage field. It was frankly a temporary emergency institution for the purpose of helping distressed homeowners and of bailing out mortgage holders. It secured its funds from a \$200-million government subscription to its capital stock and from its power to sell no more than \$4750 million of bonds that were fully guaranteed by the government. It has made no new loans since June, 1936, but it made more than a million loans amounting to nearly \$3100 million during its three years of active lending. About 90 per cent of this amount, or \$2750 million, was disbursed in exchange for defaulted mortgages. Banks and trust companies received more than \$900 million, savings and loan associations nearly \$800 million, mortgage companies nearly \$200 million, insurance companies \$165 million, and individuals and estates nearly \$700 million. There can be little doubt that the HOLC helped many homeowners escape serious injury from the drastic deflation, put many financial institutions in a more solvent and more liquid condition, and helped revive the flow of new urban mortgage loans. Though it was generally expected that the HOLC would suffer heavy losses on its loans, it appeared in 1947 that it would liquidate with a net profit, thanks largely to the wartime inflation of real-estate prices.

The 11 Federal Home Loan banks were authorized in 1932 to perform for lenders on urban residential real estate the same kinds of functions that the Federal Reserve banks do for their member commercial banks, though the Federal Home Loan banks do not, of course, have the power to create money. Each of these banks is governed by a board of directors of 12 members, of whom four are appointed by the Federal Home Loan Bank Administration in Washington and the other eight by its member institutions. These banks secure their funds in three major ways: (1) by selling their stock to the government and to member financial institutions, (2) by accepting deposits from member institutions, and (3) by selling their debt obligations, both short term and long term. At the end of 1946 the 11 Home Loan banks had the following amounts from these sources:

Capital stock	\$232,000,000
Member deposits	70,000,000
Outstanding debt obligations	169,000,000
Total	\$471,000,000

The Federal Home Loan banks are "bankers' banks"; they do not lend directly to homeowners and other individual mortgagors but only to member institutions. Members can secure either short-term or long-term loans when in need of funds. These loans amounted to about \$293 million at the end of 1946. Four types of institutions are eligible for membership in the Federal Home Loan bank system: federal savings and loan associations, state savings and loan associations, mutual savings banks, and insurance companies. Every federal sav-

TABLE 51. MEMBERSHIP IN THE FEDERAL HOME LOAN BANK SYSTEM, DECEMBER 31, 1946¹³

Type of Institution	Number of Institutions	Assets of Member Institutions (In millions of dollars)
Federal savings and loan associations	1471	\$4,672
State savings and loan associations	2190	4,319
Mutual savings banks	25	641
Insurance companies	12	418
Total	3698	\$10,050

ings and loan association must join the Home Loan bank in its district, and the state-chartered institutions are permitted to join if they meet the entrance tests and submit to the supervision of the district bank. Table 51 shows the membership in the system at the end of 1946. Their ability to borrow from the Home Loan banks should do much to increase the liquidity of member institutions.

The Federal Savings and Loan Insurance Corporation was established in 1934 to protect people leaving their money with savings and loan associations in somewhat the same way that the Federal Deposit Insurance Corporation protects depositors in banks. Each account at a member institution is insured up to \$5000. All federal savings and loan associations must

¹³ *Federal Home Loan Bank Review*, March, 1947, p. 196.

join and state-chartered associations may join if they are sound. The funds of the FSLIC come from the government's stock subscription of \$100 million and from insurance premiums. Each insured institution must pay an admission fee equal to $\frac{1}{25}$ of 1 per cent of its liabilities and an annual premium equal to $\frac{1}{8}$ of 1 per cent of its liabilities. At the end of 1946 this insurance plan covered 1471 federal savings and loan associations and 1025 state-chartered associations with aggregate assets of about \$7320 million.

The Federal Housing Administration

The Federal Housing Administration, founded in 1934, promises to be the most important of the federal institutions in the housing finance field, though it does not itself make any loans. Its function is to insure private lending institutions against loss on loans secured by mortgages on one- to four-family dwellings or on large-scale rental housing projects, and on loans for property repair and improvement.¹⁴ A loan is insured only if it is considered sound, if provision is made for its gradual retirement over a period of time, if the interest rate is not in excess of a stipulated amount—4 $\frac{1}{2}$ per cent in most cases—and if other regulations are complied with. The FHA charges an annual premium of $\frac{1}{2}$ of 1 per cent for its insurance of loans.

Table 52 shows the amounts of loans insured by the FHA during the years since 1934. These figures represent the gross amount of insurance written in this period and do not reflect principal repayments. The amount of outstanding loans with FHA guarantees was well above \$3 billion in 1947, and there was every reason to believe that it would rise as new construction continued. Table 53 shows the types of lenders holding Title II mortgages insured by the FHA; these represent the great bulk of FHA-insured loans. These insured mortgages have become especially attractive to commercial banks

¹⁴ The insurance provisions differ somewhat on different kinds of loans. Title I provides insurance on loans for repairs and modernization and on loans for small houses. Title II, under which the bulk of the FHA insurance has been written, provides insurance for mortgages on one- to four-family dwellings and on other structures for rental purposes. Title VI provides insurance for mortgages on rental housing projects.

and insurance companies, though sizable amounts of them are held by savings and loan associations and mutual savings banks.

The FHA has brought about almost revolutionary changes in home financing. Prior to 1934, most home mortgages were

TABLE 52. LOANS INSURED BY THE FEDERAL HOUSING ADMINISTRATION¹⁵
(In millions of dollars)

Year	Amount of loans insured
1935	\$ 320
1936	557
1937	495
1938	694
1939	954
1940	1026
1941	1186
1942	1137
1943	942
1944	886
1945	684
1946	797
Total, 1935-1946	\$9678

written for only relatively short periods of time, usually for no more than 10 years; first mortgages were usually limited to 50 per cent of the value of the real estate, so that borrowers

TABLE 53. HOLDERS OF TITLE II MORTGAGES INSURED BY THE FHA¹⁶
(In millions of dollars)

End of Month	Total Out-standing	Commercial Banks	In-surance Companies	Savings and Loan Associations	Mutual Savings Banks	Federal Agencies	Others
December, 1936	\$ 365	\$ 228	\$ 41	\$ 56	\$ 8	\$ 5	\$ 27
December, 1941	3107	1465	789	254	186	234	179
December, 1945	3156	1506	1000	253	263	13	122
June, 1946	3102	1488	974	247	260	11	122

wanting larger loans had to resort to expensive second and even third mortgages; in many cases no provision was made for the orderly retirement of mortgages; mortgage credit,

¹⁵ *Federal Reserve Bulletin*, March, 1947, p. 317.

¹⁶ Source: *Federal Reserve Bulletin*.

being based solely on the creditworthiness of little-known borrowers, was relatively immobile; and there was no ready market for mortgages, so lenders considered them highly illiquid assets. The FHA has changed all this, for it insures the safety of first mortgages that run for as long as 20 years, are equal to as much as 90 per cent of the value of homes, and are retired by a series of monthly payments. People can now buy homes with monthly payments comparable to the rent they used to pay. Both the geographic mobility of mortgage credit and the liquidity of mortgages have been greatly increased. Protected by FHA insurance and no longer having to depend exclusively on the creditworthiness of an unknown borrower, institutions in sections with a large supply of credit can lend safely in credit-deficit areas. Suppose that Jones in Kingman, Kansas, wishes to borrow \$8000 to buy a house, but that credit is scarce in that locality. An eligible lender in the area—a commercial bank, for example—could make the mortgage loan, have it insured by the FHA, and then sell it to the Metropolitan Life Insurance Company of New York or to any other similar lender. This would have been impossible on any wide scale before FHA insurance was introduced. The protection afforded by FHA insurance has also greatly increased the marketability of home mortgages and has made people more willing to lend in this field. To enhance still further the marketability of insured mortgages the Reconstruction Finance Corporation in 1938 established the Federal National Mortgage Association, which stands ready to buy and sell them.

The Federal Public Housing Authority

We shall mention only briefly the Federal Public Housing Authority, which has two general functions, one temporary and the other more permanent. Its temporary function was to administer the publicly financed war housing projects. Its permanent function is to make loans and grant subsidies to state and local government projects for slum clearance and low-rent housing.

The National Housing Agency

The National Housing Agency is a Washington agency that supervises and coordinates the activities of the Federal Home Loan Bank Administration, the Federal Housing Administration, and the Federal Public Housing Authority.

THE RECONSTRUCTION FINANCE CORPORATION

The Reconstruction Finance Corporation, which was established in 1932, is one of the most extensive of our federal financial agencies. Its original purpose was to assist financial institutions, railroads, farmers, business firms, and governmental units that were suffering under the impact of the depression. Funds for these purposes were provided by a \$500-million stock subscription by the government and by the authority given the RFC to issue obligations that were fully and unconditionally guaranteed by the government. The RFC has lent billions of dollars to financial institutions, such as banks, savings and loan associations, and insurance companies; it purchased large amounts of preferred stock in commercial banks to restore their solvency; it made large loans to distressed railroads; and it still makes both short-term and long-term loans to business enterprises that cannot secure credit from private sources at the rates prevailing for the type of loan in question. In addition to its own direct loans, the RFC guarantees loans made by banks.

Though originally established to combat deflation and depression, the RFC has been given other duties as time passed. To promote our defense and war efforts, this agency, either directly or through newly established subsidiaries, made large loans to businesses for the construction of war plants, purchased and stockpiled large amounts of materials and supplies, and wrote large amounts of insurance against damage from enemy action. At the end of the war it was given broad powers to dispose of government surplus property. It has also been used extensively to provide capital for and to make loans to other government financial institutions. The RFC

and its subsidiaries—the RFC Mortgage Company, the Federal National Mortgage Corporation, the War Damage Corporation, the U. S. Commercial Company, and the Rubber Development Corporation—are now under the supervision of

TABLE 54. ASSETS OF THE RFC AND ITS SUBSIDIARIES, DECEMBER 31, 1946¹⁷

Type of Asset	Amount (In millions of dollars)
Loans outstanding	\$ 740
Lands, structures, and equipment	2861
Commodities, supplies, and materials	667
Other assets	775
Total	<u>\$5043</u>

the Federal Loan Agency. Table 54 shows the assets of the RFC and its subsidiaries at the end of 1946.

THE EXPORT-IMPORT BANK

The purpose of the Export-Import Bank, which was formed in 1934 and reconstituted and enlarged in 1945, is to facilitate both short-term and long-term foreign lending as a means of assisting the foreign trade of the United States. The Bank facilitates foreign lending both by making loans itself and by guaranteeing those made by others. Funds for these purposes are acquired from a government stock subscription of \$1 billion and from the authority to sell no more than \$2500 million of its debt obligations to the Treasury.

SUMMARY OF FEDERAL FINANCIAL INSTITUTIONS

Table 55 shows the amount of outstanding loans by the various federal institutions surveyed in this chapter. Though this total of loans is impressive, it does not indicate adequately the importance of federal institutions in the financial system. It does not show the large amounts of loans guaranteed wholly

¹⁷ *Federal Reserve Bulletin*, March, 1947, p. 308.

or in part by such agencies as the FHA, the RFC, and the Export-Import Bank; it does not reveal the volume of deposits and savings insured by the FDIC and the FSLIC; it cannot show the effects exerted by rediscount institutions, such as the Federal Intermediate Credit banks and the Fed-

TABLE 55. OUTSTANDING LOANS, OTHER THAN INTERAGENCY, OF SELECTED FEDERAL FINANCIAL INSTITUTIONS, DECEMBER 31, 1946¹⁸

Institution	Amount of Loans Outstanding (In millions of dollars)
Farm Credit Administration	
Banks for Cooperatives	\$ 231
Federal Intermediate Credit banks	273
Federal Land banks	919
Other FCA Agencies	2
Federal Farm Mortgage Corporation	120
Rural Electrification Administration	527
Commodity Credit Corporation	109
Farmers Home Administration	315
National Housing Agency	
Federal Home Loan banks	293
Home Owners Loan Corporation	624
Federal Public Housing Authority	279
Federal Housing Administration	26
Reconstruction Finance Corporation and Subsidiaries	740
Export-Import Bank	1241
Others	950
Total	\$6649

eral Home Loan banks, on the willingness of others to lend; and it cannot demonstrate the effects of federal institutions on the mobility of credit and the structure of interest rates. Some of these aspects will be discussed in the next chapter.

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¹⁸ *Ibid.*, March, 1947, p. 308.

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The Government and the Money Markets

THE MAIN PURPOSE OF THIS CHAPTER IS TO SUMMARIZE THE effects of government intervention in the financial processes of issuing, buying, and selling securities of various kinds and maturities. Before attacking this broad problem, however, we should look at the specific functions of the Securities and Exchange Commission.

THE SECURITIES AND EXCHANGE COMMISSION

The Securities and Exchange Commission, which was established in 1934, is an independent, quasi-judicial agency of the federal government made up of 5 commissioners appointed for five-year terms by the President by and with the advice and consent of the Senate. Its purpose is to administer seven important laws relating to transactions in securities. These are: (1) the Securities Act of 1933, (2) the Securities Exchange Act of 1934, (3) the Investment Company Act of 1940, (4) the Trust Indenture Act of 1939, (5) the Investment Advisers Act of 1940, (6) the Public Utility Holding Company Act of 1935, and (7) Chapter X of the Bankruptcy Act.

The Securities Act of 1933

The purpose of the Securities Act of 1933 is to protect buyers against worthless, fraudulent, and misrepresented

security issues. The problem is not new; American investors have lost billions of dollars in buying securities that were worth far less than was claimed for them. Protective laws in effect prior to 1933 proved inadequate. The federal laws against use of the mails to defraud could be circumvented by using other methods of communication; moreover, it was sometimes difficult to establish the fact that failure to supply buyers with complete, accurate, and pertinent information constituted fraud. State "blue-sky laws"—so called because some salesmen would sell patches of blue sky if they could find sufficiently gullible buyers—were usually ineffective. They did not reach interstate sales of securities, they were not uniform in the various states, they were usually administered in a lax way, and the embarrassed victims of misrepresentation often failed to inform the authorities of the fraud. It became evident that only federal legislation, aggressively administered, could cope with the problem.

The Securities Act of 1933 is often called "the truth-in-securities act." This name is an accurate indicator of its purpose. It is not the function of the SEC to prohibit the sale of risky securities or to place the stamp of approval on those that are relatively safe. Instead, the Act is designed to compel disclosure of all pertinent information concerning securities publicly offered and sold in interstate commerce or through the mails, so that investors will be in a position to exercise an informed judgment about those that are offered to them. In order to secure full disclosure, offerers of securities subject to the Act must file registration statements with the SEC a stipulated period of time before the securities go on sale, and must also supply a comparable amount of information to the public in their prospectuses. The SEC may require amendments to registration statements and postpone sales if it finds that the information filed is materially misleading, inaccurate, or incomplete. Persons responsible for filing false information with the SEC subject themselves to the risk of fines and imprisonment. Offerers may also be sued for damages by the purchasers of securities if, when the registration statement became effective, it contained untrue statements of material fact or omitted required information.

The Securities Exchange Act of 1934

In an earlier chapter we mentioned some of the abuses in securities trading, both in the securities exchanges and in over-the-counter markets. These include misrepresentation, wash sales, other rigging operations, and unfair use of "inside information" by corporation officials and by brokers and dealers in securities. The Securities Exchange Act of 1934 specifically prohibits some practices, authorizes the SEC to regulate others, and provides for registration with the SEC of national securities exchanges, the members of securities exchanges, the companies whose securities are listed on these exchanges, the brokers and dealers who operate in over-the-counter markets, and national associations of such brokers and dealers. Anyone violating the rules or failing to supply complete and accurate information is subject to punishment and may have his trading privileges suspended. The Act also gave the Board of Governors of the Federal Reserve System full power to determine margin requirements. Trading in over-the-counter markets is regulated both by the SEC itself and to some extent by a trade association, the National Association of Securities Dealers, Inc., which is under the surveillance of the SEC.

The Investment Company Act of 1940

We saw in the preceding chapter that some investment companies (investment trusts) have been guilty of practices detrimental to at least certain classes of their security holders. The Investment Company Act of 1940 is designed to prevent these evils. It requires investment companies to register with the SEC, prohibits some practices, and makes certain others subject to regulation and approval by the SEC. The SEC is empowered to apply for court orders enjoining investment trust plans for reorganization, merger, or consolidation that would be grossly unfair to any class of security holders, and for similar orders to restrain other acts involving gross misconduct or abuse of trust by the management of an investment company.

The Trust Indenture Act of 1939

An indenture is, in effect, a contract between an issuing corporation and the holders of a particular security issue that sets forth the rights of the security holders and contains provisions for protecting their claims. Indentures for bond and other debt issues are usually deposited with a trustee who is supposed to act for the security holders and protect their interests. Some of these arrangements have not worked satisfactorily. In some cases indentures have been loosely drawn and have failed to provide adequate protection. Likewise, the trustees have frequently failed to enforce fully the protective features of the indentures. They have too often been passive in their attitude, too closely related to the issuing corporation to press the claims of its creditors, or involved as trustee for two or more issues of securities with conflicting interests.

The Trust Indenture Act of 1939 provides, in general, that issues of bonds, notes, debentures, and other similar debt securities exceeding \$1 million in principal amount may not be offered for sale to the public unless they are issued under a trust indenture which conforms to specific statutory standards designed to protect purchasers. It also sets up standards for trustees under indentures, with a view to insuring that they will be competent, independent, and free of interests that conflict with those of the particular class of security holders in whose behalf they are supposed to be acting.

The Investment Advisers Act of 1940

Many individuals and institutions, lacking either the information or the time to make their own investment decisions, have employed supposedly expert and unbiased investment advisers or counselors to aid them. But some of these advisers have been far from unbiased; they have merely posed as such while working for manipulative pools or having other interests at variance with those of their customers. The Investment Advisers Act of 1940 makes unlawful any practices that constitute fraud or deceit, requires registration of advisers who receive compensation for their services, and provides that

advisers must disclose the nature of their business and their interests in transactions executed for clients. Advisers who violate the rules of the Act are subject to punishment and to revocation of their right to engage in this type of business.

The Public Utility Holding Company Act of 1935

One of the striking developments of the nineteen-twenties was the rapid growth of public utility holding companies, many of them covering a wide area and having a highly complex structure, and some of them tending to increase rates to consumers and to magnify the risk to certain classes of security holders. It is the duty of the SEC, in administering the Public Utility Holding Company Act of 1935, to simplify these corporate structures; to prevent the imposition of excessive charges on subsidiary public utility companies for services, construction work, equipment, and materials; to prevent the issue of securities on the basis of fictitious or unsound asset values; and to eliminate various other evils and abuses.

Chapter X of the Bankruptcy Act

We shall mention only briefly the function of the SEC in connection with Chapter X of the Bankruptcy Act. The SEC makes available to the Federal District Courts its expert assistance and advice in the reorganization of debtor corporations in which there is a substantial public interest.

THE GOVERNMENT AND THE SAVING AND INVESTMENT PROCESSES

We have already emphasized that the processes of saving and investment occupy a key position in our economic system, not only determining the rate at which we add to our stock of real capital, but also affecting greatly the level of employment and real income. Under our so-called "free enterprise system" many, if not most, of the decisions relating to saving and investment are made by individuals and business firms,

but the role of the government in these processes must not be underestimated. In the remainder of this chapter we shall survey broadly, though perhaps inadequately, the principal ways in which the government exerts its influence in this field. We shall find that it has the power—and has used it—to affect greatly the money supply, the size of our national income, the rate of saving, the rate of investment, the height of our interest rate structure, geographic differentials in interest rates, and differences in interest rates on various types of securities. Table 56 outlines the principal ways in which the government affects the saving-investment processes.

TABLE 56. THE PRINCIPAL SOURCES OF GOVERNMENT INFLUENCE ON THE SAVING-INVESTMENT PROCESSES

- I. Chartering and regulating privately owned financial institutions.
- II. Central bank policy of the traditional types.
 1. Federal Reserve and Treasury operations affecting the dollar volume of bank reserves and the height of the banks' reserve requirements.
 2. Control of margin requirements on security loans.
- III. Treasury fiscal policy.
 1. Tax policy.
 2. Expenditure policy.
 3. Borrowing and debt retirement policy.
 - a. Amount of borrowing or debt retirement.
 - b. Source of loan funds and types of debt paid off.
- IV. Operation of government financial institutions.
 1. Insurance of savers' claims against financial institutions.
 2. Insurance of loans made by financial institutions.
 3. Loans to financial institutions.
 - a. Bailing-out operations.
 - b. Permanent rediscount facilities.
 4. Loans to borrowers other than financial institutions.

CHARTERING AND REGULATING PRIVATELY OWNED FINANCIAL INSTITUTIONS

Even the most zealous advocates of laissez-faire long ago conceded the right of government to lay down general rules for the chartering and operation of financial institutions. But in formulating "the rules of the game" the government can influence markedly both the structure and the functioning of the financial system. This applies even to the granting of

charters. With no minimum capital requirements, no limitation on the number of institutions created, and no restriction on the scope of its operations, our financial system would probably be far different from what it actually is today. For example, how different would the structure and functioning of our commercial banking system be if nation-wide branch banking were possible?

The government also exerts an influence on financial processes by regulating the assets that may be purchased and held by financial institutions. Commercial banks are forbidden to hold stocks and some of the riskier types of loans. Savings banks, the trust departments of banks, and insurance companies are ordinarily even more restricted in their purchases. The principal purpose of these limitations is to protect the savings entrusted to these institutions, and it is praiseworthy. But the fact remains that the operation of business necessarily involves risk and that someone must hold the shares of ownership and the types of debt obligations that carry higher degrees of risk. Some observers fear that we will face a shortage of "venture capital" if some of these institutions with their tremendous volume of funds are not allowed to assume more risks. Regulatory authorities face a difficult problem in balancing the safety of savers' funds against the assurance of an adequate flow of venture capital.

CENTRAL BANK POLICIES OF THE TRADITIONAL TYPES

In earlier chapters we found that the Federal Reserve System and the Treasury can greatly influence, if not accurately control, the money supply, the flow of investable funds, and the general level of interest rates through their control of the reserve position of the commercial banking system. By increasing member bank reserve requirements or reducing the dollar volume of the banks' reserves they can make the reserves deficient in relation to outstanding deposits and force the banks to contract credit by calling loans or selling securities. Such a policy reduces the supply of investable funds and

increases interest rates, especially on short-term obligations. On the other hand, by lowering member bank reserve requirements or augmenting the dollar volume of bank reserves, the Federal Reserve and the Treasury can give the banking system excess reserves and encourage it to increase its loans and security holdings. Such a policy usually decreases interest rates, especially on short-term debts. Whether or not it leads to an actual increase in bank loans and security holdings depends on the current demand for loans and on the willingness of the banks to assume risks. Certainly no one can understand the supply of investable funds or the level of interest rates without reference to the general credit policy of the Federal Reserve and the Treasury.

In addition to its general credit policy, the Federal Reserve System exercises selective controls over loans on securities. By raising margin requirements on security purchases it can decrease the demand for loans for this purpose and perhaps decrease the total demand for securities. And by lowering margin requirements it can permit an increase in the demand for loans on securities.

TREASURY FISCAL POLICY

The idea that government taxation, spending, borrowing, and debt retirement policies have an important effect on the general level of economic activity and that they may be used deliberately to stabilize business at a high level is relatively new. The older idea held that a government should merely collect enough revenue to meet its necessary expenditures; it could safely ignore the effects on the level of spendings and national income. The inadequacy of the older ideas concerning fiscal policy has been shown by a number of events—the tremendous increase in government revenues and spending, which makes them amount to a considerable part of the national income; the inflationary financing of World Wars I and II; the great depression; and general disillusionment as to the ability of central bank policies of the traditional types to halt a recession and induce recovery without the aid of other

measures. Whether we like it or not, and whether or not we use it for stabilization purposes, the government's fiscal policy inevitably has a marked effect on the behavior of the economic system.

Taxation, by itself, is deflationary. It takes part of the income of individuals and business firms and leaves them with a smaller disposable income than they would have if no taxes were collected. Thus, the tax policy inevitably affects the spending power of individuals and businesses and can be used deliberately to regulate this power. By increasing its tax collections, the government can reduce the spending power of the rest of the community. And by decreasing taxes it can leave the rest of the community with greater spending power. But the effects of taxes on consumption, savings, and investment depend not only on the total amount of taxes collected, but also on their sources. A tax system that derives most of its revenue from the lower-income groups who are unable to save much even in the absence of taxes is likely to reduce consumption to a considerable extent and to have little direct impact on saving. On the other hand, a highly progressive tax system that derives most of its revenue from the higher-income groups may reduce consumption only slightly but reduce saving a great deal. In summary, the government inevitably affects the amount of consumption and savings on the part of the community when it determines the amounts and types of taxes to be collected.

Though taxation, by itself, is deflationary, government spending for goods and services tends to swell the national income. A dollar spent by the government for current output adds to the national income just as much as does a dollar spent by individuals and business firms. When the government determines the amount of its spending for output it is, in effect, determining how much it will contribute to the national income. This power can be used to "boom booms" and "depress depressions," or it can be used deliberately to compensate for fluctuations in spending by others.

Since taxation by itself is deflationary and government spending by itself is expansionist, it is evident that the net effects depend on the relationship between the two. By spend-

ing more than it collects in revenue, the government can exert a net expansionist effect on the economy. The difference must, of course, be borrowed. And by collecting revenues in excess of its spending, the government can exert a net deflationary effect. The excess of revenue over spending can be used to retire debts, thus adding to the supply of investable funds in the market, or it can be added to the Treasury's idle balances.

Government borrowing and debt retirement policies affect the saving-investment processes and general economic conditions in several ways. By borrowing funds and spending them for consumption or capital goods and services, the government can swell the national income and cushion a depression or accentuate an inflationary boom. And by using part of its revenues to retire debt, it can exert a net deflationary effect, especially if the funds used for this purpose do not find their way into private spending for new capital goods.

The effects of the government's borrowing or debt retirement policy depend to a considerable extent on the sources of the funds borrowed or the destination of the funds used to retire debt. The government can borrow from three principal sources: (1) from individuals and institutions other than commercial banks and the Federal Reserve, (2) from commercial banks, and (3) from the Federal Reserve banks. If the funds borrowed from the first source would have been used by others to purchase new capital goods, the government's borrowing and spending will not produce a net increase in national income, and it may tend to raise interest rates in the market. But to the extent that the government borrows and spends funds that would otherwise have been idle, it has a net expansionist effect on the national income and increases the community's ability to consume and save. Government borrowing and spending can be a potent expansionist force during depression periods.

The effects of government loans from commercial banks depend on the current economic situation and the current credit policies of the Federal Reserve and the Treasury. When banks lend to the government they may, of course, decrease their loans to others by a corresponding amount; hence the government's loans have no net expansionist effect on either the money supply or the national income. In such a case the

government's borrowing is likely to raise interest rates and decrease investment by others. But there is a net expansionist effect if the banks do not decrease their loans to others or if they decrease them by less than the increase in their loans to the government. This is especially likely to happen when the business demand for loans is low and the banks have excess reserves. Little or no increase in interest rates need occur in situations like this, and government spending need not be at the expense of private investment. In fact, government borrowing and spending during such periods may indirectly raise private investment through its increase in the national income and consumption.

Government borrowing from the Federal Reserve banks, either directly or indirectly, is most expansionist of all. Every increase in Federal Reserve holdings of government securities tends to increase bank reserves by a corresponding amount, thereby increasing the banks' lending power and tending to lower the interest rates.

During the latter part of the depression and during World War II the government's borrowing policies and the Federal Reserve's general credit policies were coordinated. The Federal Reserve and the Treasury kept the banks so well supplied with excess reserves that the government could borrow huge amounts, first to fight the depression and then to fight the war, without raising interest rates. In fact, interest rates showed a downward tendency despite the heavy government borrowing. It remains to be seen whether these powers will be used in the future to maintain a high and stable level of national income and employment. But we must remember that fiscal policies, whether or not they are used deliberately to promote economic stability, inevitably exert important effects on the levels of income, employment, consumption, savings, and investment.

OPERATION OF GOVERNMENT FINANCIAL INSTITUTIONS

In the preceding chapter we saw that the government operates, or at least sponsors, a large number of financial

institutions other than the Federal Reserve banks. These institutions engage in several kinds of activities that are capable of markedly influencing the operation of our financial system.

Insurance of Savers' Claims Against Financial Institutions

There are now only two federally sponsored institutions that insure the safety of savers' claims against other financial institutions, the Federal Deposit Insurance Corporation and the Federal Savings and Loan Insurance Corporation. These insurance plans may, especially in depression periods, increase the willingness of savers to leave their funds with insured institutions; perhaps people will no longer rush to withdraw their money from such institutions in times of stress. If this is the result, financial institutions will not be under so great a pressure to sell their assets during depression, and they might be more willing to make new loans. One could be more confident of these results if the FDIC plan covered deposits in excess of \$5000, and if the FSLIC plan had a broader coverage and provided prompter payments in cash.

Though the insurance premiums charged by the FDIC and the FSLIC are supposed to be adequate to cover all losses, it is still too early to know whether they will prove to be so. It might be socially desirable for the government to subsidize plans of this sort if it could thereby prevent panicky withdrawals of funds and equally panicky sales of assets by financial institutions in depression periods.

Insurance of Loans Made by Other Lenders

We have already seen that several federal financial institutions insure, in whole or in part, loans made by other lenders. These include the Federal Housing Administration, the Commodity Credit Corporation, the Reconstruction Finance Corporation, the Farm Home Administration, the Federal Reserve banks, and the Export-Import Bank. Loans insured by these institutions are made safer, enjoy a wider market, achieve higher liquidity, and carry lower rates of interest than

they would in the absence of the insurance. This device might well be used on an even broader scale to facilitate an orderly flow of savings into investment. In periods when lenders estimate risks at a high level and are reluctant to lend, loans could be insured on a liberal basis, thereby tending to increase the supply of investable funds and to lower interest rates. Then, when lending was approaching a dangerously rapid rate, insurance could be discontinued or its terms made less liberal. Such a policy admittedly constitutes socialization of risk and might well lead to financial losses by the government, but stabilization of lending at a high level is so important to our economy as to justify some cost.

The federal insurance of loans has been used to influence the terms of making loans. For example, the FHA fixes the maximum rate of interest that can be charged on insured loans, it encourages long-term amortized mortgages, and it has refused to insure loans on houses that are an unsound basis for loans. Other federal agencies, such as the Commodity Credit Corporation and the Export-Import Bank, have exerted similar influences on lending practices by stipulating requirements that must be met if insurance is to be granted.

Loans to Other Financial Institutions

Several of the federal credit agencies supply funds to other financial institutions. In addition to the Federal Reserve banks, these include the Federal Farm Mortgage Corporation, the Federal Intermediate Credit banks, the Home Owners Loan Corporation, the Federal Home Loan banks, and the Reconstruction Finance Corporation. The funds lent by these institutions come from five major sources: (1) stock subscriptions by the federal government, which both supply funds for lending and serve to protect the claims of lenders to these institutions; (2) borrowings from the Treasury; (3) sale of debt obligations that are fully guaranteed by the government; (4) sale of other debt obligations that lack government guarantee but are secured by the institution's assets, including those contributed by the government; and (5) stock subscriptions and deposits by borrowing institutions. Many people

who would not lend directly to private financial institutions are willing to purchase relatively safe government securities or securities carrying a government guarantee, thereby making available funds for loans to financial institutions.

The operations of the federal agencies that lend to other financial institutions have had several effects. In the first place, the bailing-out operations during the depression by the Reconstruction Finance Corporation, the Federal Farm Mortgage Corporation, and the Home Owners Loan Corporation relieved many financial institutions of poor-quality illiquid assets, saved many of them from failure, protected the claims of savers, helped to restore confidence in the institutions, slowed down the distress sales of mortgages and other assets, and probably expedited the recovery of new lending. Although it is evident that these operations exposed the government to the risk of heavy financial losses, before condemning them one must ask whether or not the social benefits outweighed the potential cost.

In the second place, the willingness of these federally sponsored agencies to supply funds to other institutions increases the latter's liquidity and enhances the mobility of credit. The ability of an institution to borrow from or to rediscount paper at a Federal Intermediate Credit bank or a Federal Home Loan bank increases the liquidity of the eligible types of paper, makes the institution more willing to purchase such paper, and increases the willingness of savers to entrust their funds to such institutions. It also increases the geographic mobility of credit. For example, the Federal Intermediate Credit banks can borrow funds in the markets where money is cheapest and most plentiful and lend them to institutions in scarce-credit areas.

Loans to Other Borrowers

Many of the federal credit agencies lend to individuals and business concerns other than financial institutions. These include the Federal Land banks, the Federal Farm Mortgage Corporation, the production credit associations, the Banks for Cooperatives, the Rural Electrification Administration, the

Commodity Credit Corporation, the Farm Home Administration, the Reconstruction Finance Corporation, and the Export-Import Bank. These institutions secure the funds for loans from the same sources as do the federal agencies that lend to other financial institutions, discussed in the preceding section.

As lenders these agencies determine, within the power given them by Congress, the interest rates and all other conditions of their loans. Though generalizations are difficult, the lending policies of these agencies tend to differ in the following important respects from those of most private institutions. (1) The interest rates charged on any given type of loan tend to be uniform throughout the country; they are not adjusted to the regional differentials that have prevailed in the past. For example, the Federal Land banks charge the same interest rates on farm mortgages in Massachusetts and in Oklahoma, despite the fact that the rates charged by private lenders have been appreciably higher in Oklahoma. (2) Interest rates tend to be uniform on loans to both large and small borrowers, whereas private lenders tend to charge higher rates to small borrowers. (3) Interest rates are not adjusted to the amount of risk involved in a loan. A federal agency often refuses to make loans when the risks are excessive, but it tends to charge uniform rates on all loans of a given type that it makes. (4) The rates of interest charged on loans by federal agencies are in many cases set at a fixed number of percentage points above the interest rate that must be paid by the agency when it borrows in the most sensitive money markets. This tends to introduce interest rate flexibility into money markets, especially into those for agricultural loans, which have in the past been notoriously inflexible. As a result of these various policies, the competition from federal lending agencies has tended to narrow geographic differentials in interest rates and to lessen the differentials based on the amount of risk and the size of loans.

The entrance of government agencies into the lending field raises many serious questions of public policy. One of the broadest is, "Should the government or its agencies be put in a position to grant or deny credit to potential borrowers?"

Some answer in the negative, fearing that this power will be used for political purposes to reward friends and punish enemies, that the development of private financial institutions will be endangered, that the government will be incapable of channeling credit into its most productive uses, and that interest rates and other lending policies will be dictated by political expediency rather than by maximum economic productivity and stability. Others believe that these evils can be avoided and that the government agencies can be useful supplements to private financial institutions, eliminating some of the imperfections of the credit market and contributing to a steady flow of savings into investment.

A second important question is, "Should the interest rates charged by these agencies be high enough to cover all the costs of making loans, including adequate compensation for risks?" The appropriate answer here seems to be that no subsidy, either open or hidden, should be given unless it can be specifically justified by its results. A subsidy may well be justified, however, when savings threaten to outrun investment and a reduction in interest rates would lead to an appreciable increase in the rate of investment. But by the same reasoning, subsidies should be discontinued when investment would proceed satisfactorily without them. This leads to a third question, "Should the lending policies of these institutions be used to mitigate the effects of the business cycle?" The writer believes that they should, and that they should be coordinated for this purpose with all the other economic and financial powers of the government. This would mean that the federal institutions should lend liberally and at low rates of interest in periods of slackening investment, and less liberally and at higher rates of interest when investment approached a dangerously rapid pace. Whether such policies will be adopted remains to be seen.

SUMMARY

The purpose of this chapter was to survey broadly, though not in detail, the various ways in which the government affects

the saving-investment processes. We found that some of the principal influences of the government on these processes are exerted by (1) chartering and regulating private financial institutions; (2) Federal Reserve and Treasury credit policies of the traditional types; (3) Treasury fiscal policy, including taxation, spending, borrowing, and debt retirement; and (4) the operation of federal financial institutions that insure savers' accounts with financial institutions, insure loans in whole or in part, lend to other financial institutions, and lend to other borrowers. Perhaps no one of these activities considered by itself seems capable of exerting a strong influence on the operation of our economy. But all of them taken together constitute a powerful influence which affects the money supply, the size of our national income, the rate of consumption, the rate of saving, the supply of investable funds, the height of the interest rate structure, geographic differentials in interest rates, and interest rate differentials on various types of loans. In the past these powers have not been carefully coordinated and they have often conflicted with one another. There is urgent need for the government to make a broad survey of its present and potential powers, review its economic and financial objectives, and use all of its appropriate powers in a consistent and coordinated way to achieve the objectives that it selects.

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An Introduction to Monetary Theory

IN THE PRECEDING CHAPTERS WE INVESTIGATED THE MOST important monetary and financial institutions and studied some of the most important monetary principles. We surveyed the functions of money in an economic system, the kinds of money used to perform these functions, the various kinds of monetary standards, the nature and functions of credit and credit instruments, commercial banking, central banking and credit control, international monetary relationships, the use of money in the processes of saving and investment, and the functions of many kinds of financial institutions. Most of the remainder of this book will be devoted to a subject which is usually called "monetary theory." We touched on it briefly in Chapter 2 and at several other points, but we shall now deal with it more thoroughly.

THE SCOPE OF MONETARY THEORY

It is difficult to define precisely the area covered by monetary theory. During most of the nineteenth century and the early years of the twentieth, it was concerned almost exclusively with the determination of the value of money, or the general price level. This was the period in which classical economics reigned supreme. Economists were interested pri-

marily in the conditions of long-run equilibrium, they devoted but little attention to the behavior of the economy during short-run periods, and the economics of unemployment was as yet in its infancy. Money and monetary policy were believed to have little effect on either the volume of production or the distribution of income, these being determined almost exclusively by such "real" factors as the supplies of land, labor, and capital and the state of the technology.¹ To these economists the primary purpose of monetary theory was to explain the purchasing power of money for other goods and services.

The scope of monetary theory expanded as economics grew and as the classical analysis of long-run equilibrium came to be supplemented by analyses of short-run periods of disequilibrium and by business cycle analysis. Even John Stuart Mill, with his emphasis on long-run equilibrium, admitted that money "exerts a distinct and independent influence of its own when it gets out of order." As economists increased their understanding of short-run conditions and business cycles they became convinced that money is "out of order" a large part of the time, though in different ways and in varying degrees, so that it exerts "a distinct and independent influence of its own" most of the time. Through its effect on the flow of spendings, money and monetary policy can influence not only the general purchasing power of money, but also the volume of production, the amount of employment, the heights of various prices relative to each other, and the distribution of wealth and income. Monetary theory is now concerned with all the relations among money and prices, production, and the distribution of wealth and income. In fact, the whole trend is now toward an integration of general economic theory, monetary theory, and business cycle theory.

TYPES OF MONETARY THEORY

In the following chapters we shall study four principal types of monetary theory: (1) quantity theories of the trans-

¹ See pp. 14-17.

actions type, (2) the cash-balance type of the quantity theory, (3) commodity theories, and (4) income and expenditure theories. Quantity theories of the transactions type analyze the value of money or the general height of prices in terms of the quantity of money available, the velocity or rapidity with which it is spent, and the physical volume of trade to be effected with money. The cash-balance type of quantity theory, using the familiar demand and supply analysis, explains the value of money in terms of the supply of and the demand for it. The commodity theories attempt to explain the value of money by explaining the value of the material out of which money is made. For this purpose they use a supply and demand analysis that applies to the money material. The income and expenditure theories analyze the problem in terms of the creation of money income by spending for consumption and investment goods and the disposal of money income for consumption, saving, investment, and hoarding.

This variety in monetary theories may be confusing to the newcomer. He is likely to feel that only one type of theory is valid and that the others should be discarded. Or he may feel that they necessarily contradict one another. But this is not the case. There are, of course, theories within each of these general categories that do not faithfully describe the relations among money, price levels, production, and the distribution of wealth and income. We shall not present here the types of theories that we consider invalid. But it must be emphasized that the four types of theory outlined above are not necessarily contradictory. Instead, they are different logical frameworks in which the same causal factors are embodied. In fact, it is not difficult to transform any one of these theories into the others. We present all four types of theory here because they are all used and because each of them is useful in analyzing particular types of problems.

The Transactions Type of Quantity Theory: General Principles

OF ALL THE THEORIES PURPORTING TO EXPLAIN THE VALUE OF money at any one time and its variations over periods of time, the so-called quantity theory in its various forms is the oldest and has been the most influential. Crude statements of it are found at least as far back as Roman writings; it became somewhat better developed during the price revolution of the sixteenth century; and by the end of the eighteenth century it had received clear formulations, notably from Bodin, Cantillon, and Hume, that closely resemble those of modern quantity theorists. Since the time of Hume the quantity theory in one or another of its forms has been accepted by the majority of economists, despite the criticism to which it has been subjected. As this theory developed, it assumed two general forms, though both lead to the same conclusions. The first, which will be discussed in this and the following chapter, is usually referred to as "the transactions approach." The second, which will be described in Chapter 28, is called "the cash-balance approach."

It is necessary at the outset to note that the name "quantity theory" does not at the present time describe accurately the type of analysis to which it refers. It was a faithful description of the theory to which it was first applied, but though the

name has remained unchanged the theory has undergone such an evolution as to be hardly recognizable. There is little more resemblance between the modern "quantity theory" and the "quantity theory" of the late Middle Ages than there is between the houses of the two periods. This can be shown by a brief sketch of the evolution of the theory.

The quantity theory is based upon the fundamental characteristic of money: that money *as money* is not useful in itself and is not demanded for itself. However large or small its total quantity, it is desired by people only to be passed along sooner or later for the purchase of other things. For this reason, said the quantity theory in its earliest and crudest form, the purchasing power of money depends upon the relative quantities of money and of the things to be purchased with it. If the quantity of money is large relative to the quantity of things to be purchased with it, the purchasing power of each unit of money must be low—prices in general must be high. If, however, the quantity of money is small relative to the quantity of things to be purchased with it, prices in general must be low. It should be noted that according to this theory it is the *quantity* of money of all kinds—not its "quality," "backing," or commodity content—that is of primary importance in determining its value; the quality of money affects prices only in so far as it affects the quantity of money available.¹

But important as is the ratio between the quantity of money and of goods to be sold for money, no competent economist since the time of Hume has believed that there is any fixed and automatic relationship between the quantity and the value of money. All have recognized that changes in the money supply affect prices only by affecting total money expenditures, and that these expenditures are by no means always proportional to the quantity of money. Another factor must therefore be considered—the velocity, or rapidity of circulation, of money. One unit of money spent ten times in

¹ It will be seen later that the more advanced forms of the quantity theory also recognize that the "backing" of money may at times affect its rapidity of circulation and thereby its purchasing power.

a period exerts the same effect on prices as ten units spent only once; an increase in the rapidity of circulation tends to increase the money demand for things and to enhance prices, just as would an increase in the money supply. And conversely, a decrease in the velocity of money tends to reduce aggregate expenditures and prices, just as would a decrease in the money supply.

Thus, the more refined versions of the quantity theory recognize three *immediate* factors as determining the general level of prices: (1) the quantity of money; (2) the velocity of circulation of money; and (3) the physical volume of trade to be effected with money. It is often said that "the general level of prices varies directly with the quantity of money and its velocity of circulation and inversely with the volume of goods and services to be purchased with money." And variations of the price level may be traceable to changes in any one or more of these factors. It is to be emphasized that the modern versions of the quantity theory do not state that the general level of prices depends solely upon the quantity of money, or that changes in prices must originate with changes in the quantity of money, or that a change in the quantity of money always and necessarily produces a proportional change in prices. Those who criticize the quantity theory on the ground that it makes these statements are fencing with ghosts.

THE EQUATION OF EXCHANGE

To carry their analysis beyond the preliminary stage indicated above, quantity theorists frequently employ an *equation of exchange*, which is stated as $MV = PT$, or sometimes as $\frac{MV}{T} = P$. In this equation M is the average quantity of money of all kinds in circulation in a given area during a specified period of time. V , or velocity, is the average number of times each unit of M is spent for goods, services, or securities during a specified period. The product MV is, therefore,

the total of money expenditures for all goods, services, and securities during the period; it is the aggregate money demand for these things. T is the physical volume of things for which money is spent during the period—the physical volume of trade in goods, services, and securities effected with money during the period. P is the average price per unit of T . It is immediately obvious that the equation of exchange is a truism; the aggregate value of the money given in exchange for goods, services, and securities (MV) is equal to the money value of the goods, services, and securities given in exchange for the money (PT). If, for example, 100 units of money (dollars) are spent an average of 30 times during a year to purchase 1500 units of goods, services, and securities at an average price of \$2 per unit, the \$3000 of money expenditure is obviously equal to the money value of the things purchased with the expenditure.

Even though it is a truism, the equation of exchange is nevertheless a powerful tool of analysis and investigation. In it are included the three direct or immediate determinants of the price level— M , V , and T —the price level varying directly with M and V and inversely with T . It must be remembered, however, that though M , V , and T are generously granted the status of direct or immediate determinants, they are in no sense the ultimate determinants of the price level. Instead, they are themselves determined by a host of underlying objective facts and human decisions.² (The ultimate determinants of the value of money are to be found behind the equation of exchange and not in it.) However, anyone who attempted to deal with this multitude of underlying influences without classifying them into a few main categories would end up by becoming hopelessly involved in his analysis and unintelligible in his exposition. The equation of exchange enables the monetary economist to avoid these difficulties by supplying him with a logical framework on which to arrange his analysis and exposition. Our task now is to explain why M , V , and T behave as they do.

² For Irving Fisher's insistence on this point, see *The Purchasing Power of Money*, Macmillan, New York, 1926, pp. viii, 74, 149, 150, 182.

M, THE QUANTITY OF MONEY

M is the average quantity of money of all kinds in circulation in a given area during a specified period of time. It is made up, as we have already seen, of two kinds: (1) cash in circulation, that is, all coin and paper money outside the Treasury and the banks; and (2) bank deposits subject to check.³ Moreover, as we have also discovered, most of the money supply is in the form of checking deposits, with paper money next in size, and coins the smallest of all.

We need not analyze in detail the determinants of the money supply, for these were dealt with at length in earlier chapters. Table 57 does summarize, however, some of the most important of these determinants.

V, THE VELOCITY OF MONEY

We have seen that the size of the money supply influences prices only through its influence on the volume of money expenditures or the money demand for the things for which money is spent, and that expenditures are by no means perfectly correlated with the money supply. In other words, the velocity or rapidity of circulation of money is one of the direct determinants of the volume of expenditures and therefore of the value of money. In fact, in many periods velocity

³ It does not include coin or paper money locked up in banks as till money and reserves, or hoards held in the Treasury.

Much discussion has centered around the question, "Are time and savings deposits money?" In this book, time and savings deposits that are subject to check—i.e., that may themselves be spent for goods, services, and securities without first being converted into checking deposits or cash—are included as money. Those that may not be spent without conversion into checking deposits or cash are excluded from the money category, despite the fact that they act as a store of value, thereby tending to free checking deposits and cash from that burden and to permit the average velocity of money proper to be higher than it would be if the holding of time and savings deposits were not possible. This procedure appears to be justified in view of the fact that other types of assets, including physical goods as well as all kinds of securities and credit instruments, are also employed as stores of value and thus release money to be used as a medium of exchange. It must be admitted, however, that the border line between money and non-money is hardly clear and clean cut.

fluctuates more widely than does the quantity of money, and sometimes much more widely. But what determines the behavior of velocity?

As noted earlier, two of the functions of money are to act as a medium of exchange and as a store of value. If each receiver of money immediately spent it all for goods, services, or securities—that is, used it immediately as a medium of exchange—the velocity of money would be almost infinitely great. But this rarely occurs. Though the receiver of money may dispose of it immediately, he may also hold some or all

TABLE 57. DETERMINANTS OF THE MONEY SUPPLY

- I. The size of the monetary base, i.e., the supply of funds available for use either as cash or as reserves behind checking deposits.
 1. The size of the monetary gold stock.
 - a. The amount of gold accumulated in earlier periods.
 - b. Additions to monetary gold stock from current gold production.
 - (1) Real cost of production of gold.
 - (2) Consumption of gold for non-monetary purposes.
 - c. Imports and exports of gold.
 2. The amount of other types of money issued by the government.
 - a. Coins, except gold.
 - b. Paper money, except gold certificates.
 3. The amount of central bank credit outstanding.
- II. The community's choice as to the relative amounts of cash and of checking deposits that it wishes to hold.
- III. The height of the ratio between bank reserves and checking deposits.
 1. Legal or customary reserve requirements.
 2. The policy of banks as to permitting reserves to be deficient or excessive, relative to requirements.

of it as a store of value for hours, days, months, or much longer periods. The longer this "average interval of rest" between receipt and expenditure, the lower is the money's velocity of circulation.⁴ Thus anything that affects people's decisions regarding the length of time that they will hold money before passing it along influences its velocity. Since each person is free, under a capitalistic system, to determine his own policy as to holding and spending money, it is reasonable to assume that at each point of time he adjusts his holdings of money relative to his expenditures in the way that seems to offer the greatest net advantage in the circum-

⁴ Cf. Knut Wicksell, *Interest and Prices*, Macmillan, London, 1936, p. 52.

stances in which he finds himself. And changes in surrounding circumstances change people's estimates as to what constitutes the optimum or most advantageous adjustment of their money holdings and spendings. Some of the most important

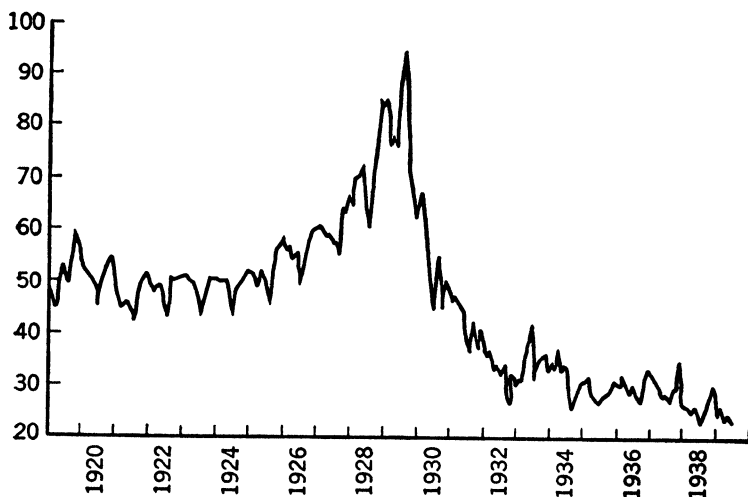


FIG. 15. *Annual Rate of Turnover of Demand Deposits in 101 Leading Cities.*

This chart is based upon the relation between debits to individual accounts in leading cities and demand deposits in weekly reporting banks. It therefore includes the transfer of deposits in every kind of transaction. In the financial centers, particularly in New York City, the rate of turnover is greatly influenced by financial transactions. The rate of turnover of deposits in other places shows smaller fluctuations. (Source: Federal Reserve Bank of New York.)

of the factors determining velocity are outlined in Table 58.

The rapidity of circulation of money is greatly influenced by the stage of development of the credit and financial system and by the community's readiness to use these facilities. If a society lacks well-developed financial institutions or if the people are unwilling to use them extensively, as was the case in western Europe up to near the end of the Middle Ages and is still true today in economically backward sections of

the world, the velocity of money is likely to be low. In these circumstances the well-to-do are likely to hold a large proportion of their savings in the form of money hoards instead of passing them along to borrowers or seekers of investment funds who will spend them. Moreover, the difficulty of borrowing quickly and easily in such a society encourages people to hoard money with which to meet contingencies. Velocity is usually greater in a society with a highly developed and confidence-commanding credit and financial system. Under

TABLE 58. DETERMINANTS OF THE VELOCITY OF MONEY⁶

- I. The stage of development of the credit and financial system and the extent to which the community uses it.
 1. Ease of lending and investing.
 2. Ease of borrowing.
- II. The habits of the community as to saving and consumption.
- III. The system of payments in the community.
 1. As to frequency of receipts and disbursements.
 2. As to regularity of receipts and disbursements.
 3. As to correspondence between times and amounts of receipts and disbursements.
- IV. The rapidity of the transportation of money.
- V. The state of expectations or anticipations of the community.
 1. As to amounts of future income and prices of goods and services.
 2. As to movements of the prices of income-yielding assets.

these conditions owners of excess funds are more disposed to lend or invest them and to hold securities rather than money as a store of value, and the knowledge that loans can be obtained quickly when needed leads to less hoarding for the purpose of meeting future obligations. The increase in the number of financial institutions, which has made them easily accessible to a growing proportion of the people, and their enhanced differentiation, which has adapted them to the needs of more and more types of lenders and seekers of funds, have been important factors in raising the secular trend of the velocity of money.

If a community is without a well-developed and widely used credit system, the velocity of its money is likely to be affected by the people's habits regarding saving and consump-

⁶ For many of these points, see Irving Fisher, *The Purchasing Power of Money*, Macmillan, New York, 1926, pp. 79-89.

tion. If people save, they are likely to hoard money, thereby lowering its velocity. But if they consume most of their incomes, they are likely to hoard less.

{Velocity is also affected by the system of payments used in the community.} By this is meant the frequency, the regularity, and the correspondence between the time and the amount of money receipts and disbursements. The greater the frequency of receipts and disbursements, the shorter is likely to be the average interval in which money is at rest, and the higher its average velocity. This can be shown by an example. Suppose that a laborer receives \$7 in wages each week and that he spends \$1 each day of the week. The average interval of rest for the money will be about half a week, or $3\frac{1}{2}$ days. One dollar will lie unused for 7 days, one for 6 days, one for 5 days, and so on. The dollars that are unused for less than half a week will be balanced by those that lie idle longer. In this case, the average velocity of the money will be 2 for the week, or about 8 for the month. But the average velocity is lower if income is received less frequently and is spent at a uniform rate during the interval. Suppose that the laborer is paid \$30 once a month and that he spends \$1 each day. One dollar will be held idle for 30 days, one for 29 days, one for 28 days, and so on. The average interval of rest for this money will be 15 days; the dollars that lie idle for less than 15 days will be balanced by those that are unused longer. In this case, the velocity of money is only 2 for the month, as compared with the 8 per month when income was received weekly. A shortening of the interval between income receipts tends, therefore, to increase velocity.

{The velocity of money is also influenced by the degree of regularity of income receipts. If people receive relatively stable amounts of income at regular intervals, they are likely to feel free to spend most of it before the next income payment is due. But if income is highly unstable in amount and irregular as to date of payment, people are likely to feel a greater need to accumulate money holdings when their funds are plentiful to tide them over the lean periods. The consequent holding of idle money tends to lower the average velocity.

A third aspect of the system of payments that affects velocity is the extent to which the time and the amount of receipts and disbursements correspond, one with the other. If receipts and disbursements are so coordinated that money is paid out as soon as it is received, its velocity is greater than would be the case if some or all of it were held for a time before disbursement. The extent to which receipts and disbursements are coordinated in time is greatly influenced by the extent to which people buy on credit. If they are in the habit of charging a large part of their purchases and paying their debts on payday or a few days afterward, the velocity of money will tend to be higher than it would be if they paid cash for most of their purchases and therefore had to hold more money during the interval between paydays.

A fourth determinant of velocity is the rapidity with which money can be transported. Any development that shortens the period between the time money leaves the payer and the time it reaches the payee makes it available for reexpenditure at an earlier date. Thus, more rapid transportation of cash and speedier movement of checks from maker to receiver tend to enhance velocity.

The four classes of determinants just described—which collectively may be said to indicate the stage of the community's economic and financial development and its commercial habits—determine the "norm" of velocity at any time, and changes in these factors determine the trend of velocity over long periods. But velocities undergo wide variations around the "norm" in short periods, especially during inflation and deflation and the various phases of the business cycle. These fluctuations are closely bound up with what has been variously called "business psychology," "the state of expectations," and the "state of anticipations" of the community.

If for any reason or group of reasons—such as an expected expansion in the money supply, a revival of business activity, the election of highly popular public officials, or even what appears to be a groundless surge of optimism—the members of the community come to feel that incomes will be received more regularly and will be higher and that prices will probably

rise, the velocity of money is likely to be increased. In the face of such a bright outlook it is considered both unnecessary and unprofitable to hold large money balances. It seems more advantageous to spend money quickly before it loses its purchasing power, and to hold goods and securities instead.

The situation is reversed, however, when large sections of the community become convinced that incomes and prices will not rise but instead are likely to fall. Such anticipations may be traceable to a fear of one or more of many things, such as a decrease in the money supply, loss of foreign markets, a stock market crash, unfavorable legislation, labor disputes, or even what appears to be unjustified pessimism. But whatever the origin of these gloomy anticipations, they are usually accompanied by a decline in velocity. Consumers postpone purchases of consumption goods, in so far as that is feasible, in order to take advantage of the lower prices expected later and to protect themselves against want during threatened rainy days; enterprisers tend to postpone purchases of capital equipment and raw materials for the same reasons and because prospective profits from production are not sufficiently enticing; and many possessors of investable funds consider it advantageous to hold their store of value in money rather than in securities which threaten to depreciate. The importance of these rises and falls in velocity that accompany the alternation of optimism and pessimism in the community will be emphasized later.

T, THE PHYSICAL VOLUME OF TRADE

We have seen that the total volume of money expenditures in any period varies with M and V . The price level varies, however, not with the absolute volume of money expenditures but with the relationship between these expenditures and the physical volume of things to be purchased with money. Thus, the *third immediate determinant* of the value of money is the physical volume of trade to be effected with money. The greater the quantity of things to be purchased with a given flow of money, the lower will be prices in general. And con-

versely, the smaller the quantity of things to be purchased with a given flow of money, the higher will be prices in general. T is the total physical volume of goods, services, and securities sold for money in a given area during a specified period of time. Every article sold for money is included, and each article is counted every time it is sold.⁶

It is impossible, at least in short compass, to explain fully the magnitude and behavior of the physical volume of trade. Such an ambitious undertaking would necessarily involve a complete explanation of the economic system. Nevertheless, it is worth while to consider a few of the most important determinants of T .

A large proportion of the trade during any period grows out of the production, transportation, and merchandising of currently produced goods, services, and securities. The volume of trade in currently produced goods and services depends to some extent on productive capacity, and the productive capacity of a country depends in turn largely upon the quantity and quality of its factors of production—labor, natural resources, capital, and technical and managerial ability. The larger the population (especially the working population) the better its health, and the greater its energy, the greater is likely to be the productive power of the country. But productive capacity also depends upon the amount and richness of the natural resources on which labor is employed, the supply of capital equipment available to assist labor, and the amount of available knowledge as to techniques of production and management.

Unfortunately, however, the actual quantity of production is by no means always as great as the potential capacity. The actual volume most nearly approaches capacity in the stage of the business cycle known as prosperity. At such times business is profitable, and most of the factors of production are employed. But the situation is far different in depression

⁶ To add together the physical quantities of such diverse things as securities, capital and consumption goods, and services of all sorts, it is necessary to have a common unit of physical measurement. This common unit is "a dollar's worth in the base year," i.e., the amount of the article that would have sold for one dollar in the base year. When the quantities of all goods, services, and securities are stated in terms of this unit, they can be added together and the total volume of T thus ascertained.

periods when business is unprofitable. At such times much labor, capital equipment, and natural resources are either totally unemployed or worked less intensively than in times of prosperity. These fluctuations in the degree of employment of the production factors explain, in large measure, the cyclical variations in T .

The volume of trade in currently produced goods and services depends, however, not only on the current volume of

TABLE 59. FACTORS DETERMINING THE PHYSICAL VOLUME OF TRADE
EFFECTED WITH MONEY

- I. Factors determining the potential volume of current production of goods and services.
 1. The size of the population, its health, energy, and philosophy.
 2. The extent of territory and the richness of the natural resources.
 3. The supply of capital equipment.
 4. The state of knowledge as to techniques of production and administration.
- II. The extent of employment of the factors of production.
- III. The number of times that currently produced goods and services are exchanged for money.
 1. The extent of specialization.
 2. The business structure; the degree of business integration.
- IV. The volume of new security issues, and the number of times that they are sold for money.
- V. The volume of goods and securities carried over from earlier periods and the frequency with which they are sold.
- VI. The extent of barter.

production, but also on the number of times that each unit of these goods and services is sold for money before being consumed. Two of the principal factors determining the number of times each good or service is sold are the extent of specialization and the structure of business. Greater specialization tends in two ways to expand the volume of trade. In the first place, as already indicated, it increases the supply of goods by enhancing per capita productivity. And in the second place, it increases trade by raising the average number of times each good is sold. If each family were self-sufficient economically, i.e., if specialization occurred only within each family, there would be no trade to be effected with money despite the fact that there was production. But if each family specialized in the production of an article which it did not consume, the total volume of production would enter into trade.

The number of times that each article is traded also varies with the degree of specialization of functions by business firms. If each of the functions of mining, manufacturing, jobbing, wholesaling, and retailing is carried on by a separate business firm, an article passing through these stages will be sold at least five times before it comes to rest in the hands of the consumer. But if all these functions are performed within one great integrated firm, each article may be sold only once—when it is sold to the consumer. It is for this reason that vertical combinations in industry may tend to reduce the volume of trade, though not necessarily the volume of production.

Also included in T is the amount of trade in newly issued securities. This element of trade varies with the volume of new security issues and with the number of times the securities are sold within the given period, whether for speculative or for other purposes.

In addition to trade in currently produced goods, services, and securities, there is always trade in goods and securities produced and accumulated in earlier periods. The volume of trade in real estate, capital equipment, securities, and other assets carried over from earlier periods constitutes a sizable proportion of the total.

The last factor that will be mentioned as influencing the volume of trade to be effected by means of money is the extent of barter. Though often ignored, it is still of some importance in modern society. Articles are often “swapped,” especially in rural regions where livestock bartering is frequent; land rents are often paid in shares of product; secondhand articles are given as partial payment for other secondhand or new articles; workers sometimes receive board and room as part of their wages; parcels of real estate are bartered for each other; corporation securities are exchanged for each other in cases of mergers and consolidations; and—perhaps most important of all—produce and securities are bartered through the clearinghouses attached to organized produce and security exchanges.⁷ The greater the proportion of trade that is effected

⁷ Cf. B. M. Anderson, *The Value of Money*, Macmillan, New York, 1917, pp. 196–202..

by means of barter, the smaller is the proportion that must be transacted by means of money. For this reason, the rise or decline of barter tends, in itself, to raise or lower prices.

P, THE GENERAL PRICE LEVEL

P is the average price of each unit of *T* in a specified period. In somewhat more technical terms, *P* is the weighted arithmetic average of the individual prices of all goods, services, and securities sold during a stated period. It is "the general price level" in the broadest sense, for it includes the prices of everything sold for money.

SUMMARY

The quantity theory states that there are three *immediate* determinants of the general level of prices, *M*, *V*, and *T*. Each of these, in turn, depends upon a large number of underlying factors; hence the price level is influenced by the multitude of factors that work through *M*, *V*, and *T*. It is just as important to note what the quantity theory does not state. It does not state that every change in *P* must originate with a change in *M*, or that *P* always and necessarily varies directly with *M* or even with $\frac{M}{T}$, or that *M*, *V*, and *T* each has its own peculiar determinants and is fixed independently of the other two. Changes in *P* may originate in factors behind any one or more of the immediate determinants, and some underlying developments influence all three of the immediate determinants simultaneously.

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The Transactions Type of Quantity Theory: Applications

IN DESCRIBING THE GENERAL NATURE OF THE QUANTITY THEORY, the preceding chapter showed that the value of money is a resultant of the interactions of M , V , and T and of their underlying determinants. Variations in the value of money originate sometimes in M , sometimes in V , and sometimes in T , but most frequently they result from concomitant changes in all three. There is no invariable sequence. Moreover, a change originating in or behind one factor in the equation of exchange often affects one or both of the others; for example, a change in M may lead to a change in V , and vice versa. The quantity theory is fundamentally a tool of analysis—a logical framework on which to arrange facts secured by other means—and not a statement of some necessary and constant order of events.

The purpose of this chapter is to use the quantity theory to analyze particular types of price problems. Four cases will be considered. The first two relate to the effects imputable to changes originating in the money supply. The second two relate to explanations of actual movements of the price level.

EFFECTS ATTRIBUTABLE TO CHANGES IN THE QUANTITY OF MONEY

General economic analysis is concerned in large part with tracing the effects attributable to particular "causes." It attempts to isolate and to analyze the effects that result from varying one factor in a given complex situation. Monetary theory sometimes utilizes this analytical technique of general economic theory to determine the effects, direct and indirect, of changes in the quantity of money. This approach must be employed by monetary authorities if they are to arrive at rational policies of quantitative control, and it is highly useful in explaining the effects of changes in the quantity of money arising out of increases or decreases in the amount of paper money, alternations of the gold content of the monetary unit, monetization and demonetization of silver, alteration of bank reserve requirements, and changes in the real costs of producing gold.

Long-Run Effects of Changes in M

In the period preceding World War I, general economic theory dealt largely with long-run, rather than "short-run" or "transitional," phenomena. This type of theory presents, in effect, a comparison of "before and after" pictures—a contrast of static equilibria before and after the occurrence of a disturbing change. At that time it assumed full employment of the factors of production and either ignored transition periods or assumed that all the necessary adjustments were consummated instantly. The pattern of monetary theory was much the same as that of general economic theory; it, too, was largely concerned with long-run causal effects, though it did not ignore the short run as much as did other branches of economics.

Most quantity theorists have held that the long-run effect of an increase or decrease in the money supply is to cause the price level to be proportionately higher or lower than it would have been if the volume of money had not been altered. They

do not contend that a given increase or decrease in M will necessarily be followed by an actual proportional rise or fall of P ; such a movement may be prevented by changes in V or T that are in no way attributable to the change in M . They claim merely that, in the long run, increases or decreases in M cause prices to be proportionally higher or lower than they would be if M were held constant.

This conclusion is based upon the contention that in the long run, after all adjustments have been consummated (though certainly not in the transition period), the velocity of money and the physical volume of trade are determined by factors largely independent of the quantity of money. The velocity depends largely upon the more fundamental trends, such as the stage of development of the credit and financial system, the system of payments used in the community, and the rapidity of the transportation of money. Likewise, the physical volume of trade depends upon factors but little affected by the quantity of money—the size of the population, the supply of land and capital, knowledge of productive and administrative techniques, the organization of industry, and the extent of barter.

{ But though V and T are in the long run largely independent of M , they are not completely so. As will be seen in the next section, the effects of varying the money supply may be so serious and far-reaching as to influence permanently the productive capacity, the distribution of wealth and income, and the form and development of economic institutions. These changes are reflected to some extent in the long-run behavior of V and T , and therefore in P .

Short-Run or Transitional Effects of Changes in M

{ No competent quantity theorist contends, however, that variations in the money supply must necessarily have exactly or even roughly proportional effects on the price level in the short run. It has long been recognized that during the period of transition, changes in M exert important influences upon both V and T , so that prices are changed sometimes more and sometimes less than proportionally. The increase and decrease in M will be considered separately.

If all the money were issued by a central monetary authority, such as the Treasury or a central bank, it would be relatively simple to effect any desired increase in the money supply. Even under our system, in which the supply depends to such a great extent upon the lending and investing operations of commercial banks, it is not difficult to expand it in periods of optimism. At such times the monetary authority need only supply the commercial banks with additional reserves, and the banks will expand their loans, investments, and deposits. But it is quite different in periods of recession and depression, with their accompanying pessimism. An increase in bank reserves in such times may not lead to an expansion of loans, investments, and deposits for a considerable time, because banks are less willing to incur the risks of lending and investing, and businessmen have less incentive to borrow. But a more liberal policy on the part of the monetary authority at least militates against further contraction and, by lowering interest rates and arousing more sanguine expectations, tends to hasten the expansion of money.

When an increase in the money supply does occur, the members of the community possess larger money balances than before. Assuming, as seems reasonable, that they had previously adjusted their money balances to the most advantageous level relative to their expenditures, the possessors of the increased balances will now feel that their money holdings are larger than necessary relative to their needs and that it is desirable to spend the excess for consumption or for investment assets. It is possible that for a time expenditures will rise less rapidly than the quantity of money, for consumption practices are to some extent habitual and require time for their alteration; therefore the purchase of investment assets may be delayed. Nevertheless, the pressure to increase expenditures is present. Even if the average velocity of money is decreased for a time—and this need not always occur—the expansion of the money supply serves to unloose forces that are likely to increase the velocity of money sooner or later. The rise in V may be small if M is expanded in an inconspicuous way or if the community believes that the aggregate rise in M will be relatively small. But if the expansion of M is

effected in a conspicuous way, especially if it is expected to be large, V usually rises considerably, because the belief is engendered that economic activity will be speeded up, employment increased, and prices raised. Under these circumstances it is no longer advantageous to hold money so long before spending it. When money incomes are expected to become larger and steadier it is not necessary to carry such large money balances as a contingency reserve. An even stronger reason for spending them and holding other assets instead is an expectation of price increases. When prices are expected to rise, consumers are encouraged to anticipate their future needs in so far as this is feasible, enterprisers attempt to build up their fixed capital and their inventories of raw and finished materials, and owners of investable funds consider it profitable to exchange their money for stocks and other equities. (If the price rise is expected to be swift, velocity may be raised far above its normal level.)

Thus, once the expansion is under way, expenditures are likely to advance faster than the money supply. It does not follow, however, that prices will be increased in proportion to the rise in expenditures, for this rise is likely to bring about an expansion in the physical volume of trade. How great the increase in trade will be varies with many factors, the most important of which is the extent to which productive factors are unemployed at the time the increase in money begins. If the economy is operating far below its capacity, with large quantities of labor, equipment, and land completely idle and others working on only a part-time basis, the resulting growth of production and trade may be great. As demand goes up, prices also rise to some extent, but each price rise is almost certain to be accompanied by greater output, unless—as rarely happens—cost schedules rise as rapidly as prices.¹ Supply is usually highly elastic when unemploy-

¹ This explanation applies most properly to industries characterized by pure competition—or an approach to it—in which each producer neglects the effect of his own production policy upon the price that rules in the market. Under such conditions an increase in demand is almost certain to raise both prices and output. In a general way the analysis also applies to industries characterized by monopoly or monopolistic competition; a larger demand usually increases both prices and output. But price and production policies of those possessing a degree of monopoly power vary widely. In

ment is widespread; a small price rise is sufficient to elicit a relatively large expansion of output, for the marginal costs of the increased output rise only slowly. But as production approaches capacity levels further increases in spendings for output result to a growing extent in higher prices and to a lessening extent in enhanced output, because marginal costs rise at an accelerating pace, rates of pay to the factors of production rise, recourse must be had to progressively inferior agents of production, workers must be paid at higher rates for overtime, the efficiency of workers and management may slacken, and in an increasing number of cases enhanced production necessitates the installation of new capital equipment.

[If, however, industry is already operating at near-capacity levels at the time M is expanded, the resulting rise in the physical volume of trade in currently produced goods and services is likely to be relatively small.] Production will be encouraged to some extent, of course; some of the unemployed will be absorbed, some laborers will work overtime, efficient equipment will be utilized more intensively, and some inferior productive agents not worth employing in periods of stable prices will be pressed into use. But under such conditions increased spendings are likely to be manifested largely in enhanced prices.

The foregoing discussion relates to trade in currently produced goods and services; there remains trade in securities and in goods carried over from earlier periods. This, too, is likely to be expanded by rising money expenditures. The growth of speculative trade in securities, commodities listed on the organized produce exchanges, and real estate is likely to be especially large.

[The general conclusion must be, then, that in the transition period an induced increase in the money supply serves to enhance the velocity of money, the physical volume of trade, and prices. Whether the resulting price rise will be in propor-

some cases they pursue a policy of keeping prices relatively fixed and allowing the increase in demand to exert its full effect on output. In others the increase in demand is manifested largely in a rise in price and to only a slight extent in an expansion of output[†].

tion to the money increase, or more or less than this, depends upon the relative movements of V and T . If both rise at the same rate, P and M will move proportionally. If V rises faster than T , P will rise faster than M . If V rises more slowly than T , P will rise more slowly than M . Just what the relative rates of change in V and T will be cannot be predicted in advance without a knowledge of the conditions existing at the time. Moreover, these relative rates of change are likely to vary at different times in the same transition period. Early in the transition period T may easily rise faster than V , especially if the expansion is initiated at a time of widespread unemployment. Then later, as production approaches capacity levels, V may rise faster, perhaps very much faster, than T . This shift in the relative rates of movement of V and T goes far toward explaining why, during protracted inflations, prices may move only slowly at first and then rise at an ever faster rate.

Even in those cases in which the rise in the general price level is initiated by an increase in the quantity of money, all individual prices are not affected uniformly. Some respond quickly and advance rapidly, whereas others respond only after a delay and advance slowly; and the more rapid the rise of the price level the greater, in general, is the dispersion of individual prices. Of the many reasons for this, a few of the most important will be noted.²

Though most prices are legally free to move, some are fixed for more or less extended periods by government regulation or by contracts. The principal government-regulated prices are court fees, postage, tolls, public utility rates, and transportation rates on common carriers; however, the list is being extended rapidly. Prices fixed by contract cover a wide area, but the most important are probably interest payments on securities, rentals of land, buildings, and durable equipment, and to a lesser extent salaries.

Even prices that are legally free to move show very different patterns of behavior, owing to variations in both demand and supply. The increase in the money demand is not felt simul-

² For a discussion of some of these factors, see Irving Fisher, *The Purchasing Power of Money*, Macmillan, New York, 1926, pp. 184-197.

taneously and proportionally by all objects of expenditure. In the first place, the new money is injected at particular points in the system, and the effects are felt there first. In the second place, the expansion is likely to bring about a redistribution of wealth and income which will alter the spending patterns of the community as a whole. And in the third place, an individual who receives a larger money income is not likely to allocate the increment proportionally among all the things he has been buying; instead, he will probably increase more than proportionally the amounts spent on luxuries and made available for the purchase of capital goods.

The response of prices is also influenced by conditions of supply. A larger demand for goods whose supply cannot be increased will be manifested almost entirely in higher prices, whereas a larger demand for reproducible goods is usually manifested in a rise of both prices and the amount produced. But the relative rates of change in the prices and production of reproducible goods vary considerably from case to case. Some of the most important reasons for this non-uniformity of response are differences in the degree of competition and monopoly in the various industries, in the price and production policies followed by firms with monopoly power, in the rapidity of the rise of costs and especially of wage rates, in the amount of excess capacity in the various industries at the time the expansion is initiated, and in the ease or difficulty of enlarging capacity where that is necessary.

(Just as an increase in the money supply can, during the transition period, raise velocity, expenditures, and the physical volume of trade and lead to "boom" conditions, a decrease can reduce velocity, expenditures, and the physical volume of trade and bring about business recession and depression.³)

A lowering of M means that on the whole the members of the community have smaller money balances than before. If the persons or firms suffering the decrease in money holdings attempt to maintain their expenditures at the old level, their balances will be lower than before in relation to their expenditures, and they will be likely to feel "short of money" and

³ It is not contended, however, that increases or decreases in the money supply are the only factors that can bring about "boom" or depression conditions.

attempt to repair their cash position by curtailing expenditures. For a time expenditures may not decrease as rapidly as M , for they are to some extent habitual. Nevertheless, the pressure toward a decrease is present. But even if expenditures fail for a time to fall as fast as M —and such a period need not always intervene—they are likely at a later stage to fall faster than M ; V is likely to be lowered. If the decrease in M is expected to be small, V may be lowered only little; but if it is expected to be rapid and prolonged, V may drop considerably, for the actual and expected decreases in the money supply arouse fears that employment, money incomes, and prices will decline. As people begin to fear that their money incomes will diminish and probably become more irregular, they attempt to accumulate larger money balances as a protection against future needs. To do this they reduce their expenditures or offer goods and securities for sale on more favorable terms, or both. This tendency to hold money to a greater extent as a store of value—often referred to as “a flight to money”—is reinforced by a belief that prices of goods, services, and securities will decline.

Thus, once the contraction is under way, expenditures usually decline faster than the money supply. Prices do not fall in proportion to expenditures, however, for the physical volume of trade is diminished. To enterprisers the falling-off of expenditures for reproducible goods appears as a smaller money demand for their products. As the demand is lowered, prices also drop to some extent, and each price decline is accompanied by a contraction of output, unless—as is highly unlikely—cost schedules fall as rapidly as prices.⁴ The reduction of trade in currently produced goods and services is usually accompanied by a reduction of trade in goods and

⁴ Here again, the explanation applies most properly to industries in which conditions approaching pure competition obtain, though it also applies in a general way to industries in which individual firms have some degree of monopoly power. Even under the latter conditions decreases in the money demand are likely to lead to decreases in both prices and output. Price and production policies vary widely, however. In some cases firms with monopoly power maintain prices and permit the reduction in the demand for money to be manifested completely, or almost so, in decreased output. In others, the reduction in demand is manifested largely in lower prices and to only a small degree in reduced output.

securities accumulated in earlier periods. The decline of speculative trade in securities, in commodities listed on the organized exchanges, and in real estate is likely to be especially large.

Thus, in the short run a decrease in the money supply affects not only prices but also the velocity of money and the physical volume of trade. Whether prices are lowered in proportion to the decrease in the money supply, or more or less than proportionally, depends upon the relative magnitude of the change in velocity and in the physical volume of trade.

Here, as in the case of an increase in the money supply, individual prices behave in markedly different ways. Some fall quickly and rapidly; others drop only after a long delay, and then only slowly. The factors responsible for this lack of uniformity have already been outlined.⁵

ACTUAL MOVEMENTS OF THE PRICE LEVEL

It is to be emphasized that the discussion in the preceding section related solely to the effects attributable to changes in the money supply. It made no pretense of explaining all the actual movements of prices. The purpose of the present section is to indicate the type of analysis that must be used to explain the actual behavior of the price level in the long run and during the different phases of the business cycle.

The Long-Term Trend of Prices

The long-term trend of prices depends, of course, upon the relative movements of M , V , and T , which in turn are the resultants of the many long-term forces that operate upon them.

In all except very mature and economically stagnant nations, T shows an upward long-term trend. The growth of population, the extension of territory in use, inventions and other improvements in technology, more rapid and cheaper

⁵ Cf. pp. 561-562.

transportation, intensification of specialization—all make for increased productivity. And trade in currently produced goods and services tends to rise faster than production, owing to greater specialization among business firms which serves to increase the number of times each good or service is sold before it finally comes to rest in the hands of its final buyer. The volume of trade in accumulated real wealth and securities also shows an upward trend in an economically progressive society. In fact, in an expanding economy there are only two developments that have a tendency in the long run to decrease T . One is the trend toward vertical integration of business firms, which tends to reduce the number of times each good is sold on its way to the final purchaser. The other is the growth of clearing or barter systems, such as those used by organized security and commodity exchanges. The combined power of these developments is usually so weak, however, that at most it merely retards the rate of increase of T . This long-run rise of T must bring about a downward long-run trend in prices if it is not accompanied by an offsetting rise in money expenditures.

For several reasons, V also tends to show an upward long-term trend in a growing economy. In the first place, credit and financial institutions become more highly developed and more widely used, so that securities and other investment assets take the place of money as a store of value to an increased extent. In the second place, the growth of population—and especially its increased industrialization and urbanization—is likely to alter the system of payments in such a way as to raise V . Receipts and disbursements tend to occur at shorter and probably more regular intervals, and the time of their occurrence tends to correspond more closely, owing to the increasing proportion of sales on credit. In the third place, the greater density of population and the speed of communication and transportation serve to shorten the time required for money to pass from payer to payee.

The quantity of money may either rise or fall over long periods, depending on the behavior of the monetary base, the community's choice as to the relative proportions of its money that it will hold in the form of cash and of checking deposits, and the ratio between bank reserves and deposits. More often

than not, however, the long-term movement of the money supply is upward, though the rate of rise varies greatly. The monetary base usually expands, because of the accumulation of monetary gold, the issuance of other types of government coins and paper money, and the increase in central bank credit outstanding. Over long periods the community usually displays a growing preference for holding checking deposits rather than cash. In some periods the ratio of reserves to deposits falls, owing either to reductions in legal reserve requirements or to a belief among bankers that such large reserves relative to deposits are no longer necessary. All these developments, if they occur, are conducive to a larger money supply. But there have been fairly long periods in which the money supply actually declined. In most cases this has been traceable to a shrinkage of the monetary base induced by gold exports, a retirement of paper money and coins, or a contraction of central bank credit. A lessening of the money supply may also be induced or aggravated by an increase in the ratio between bank reserves and deposits. This usually occurred in the past when wildcat and unsound banks were displaced by banks operated on safer principles.

In summary, the behavior of P over long periods depends upon the relative rates of change in M , V , and T as determined by relevant long-term factors. If MV rises faster than T , P shows an upward secular trend. If MV rises less rapidly than T , P shows a downward secular trend. As to the actual rates of change in these factors in different periods, few a priori generalizations are possible. In an expanding economy both V and T are almost certain to show a secular rise, though it would be only a coincidence if both went up at the same rate. More often than not, M also shows an upward long-term trend, but the rate varies greatly, and periods of decline are not unknown.

Cyclical Movements of Prices

In addition to their long-term trends, price levels undergo marked fluctuations during the phases of the business cycle. These fluctuations are also a resultant of the changes in M ,

V , and T , but they are dominated by short-term cyclical factors rather than by factors determining long-term trends. To explain why M , V , and T behave as they do in the course of the business cycle would necessitate a complete explanation of the business cycle itself. This cannot be attempted in this chapter; however, more discussion will be given to it later.⁶ We must confine ourselves here to a description of the monetary aspects of the cumulative downswing and upswing and leave largely unexplored the reasons why business at one time ceases to rise and begins a cumulative fall and at another time ceases to fall and begins a cumulative rise. The downswing will be discussed first.

The outstanding characteristics of the cyclical downswing are cumulative declines in actual and expected profits, employment, production, real income, and prices. These phenomena are manifested in the equation of exchange as declines in M , V , T , and P .

The money supply, affected as it is by so many factors, behaves differently in different recessions and in different countries, but in such periods it is always subject to powerful downward pressures. Most of these bear upon the volume of checking deposits. As prospects of profits fall faster than interest rates or even vanish completely, businessmen decrease their demand for bank loans, and banks attempt to call loans extended to borrowers whose credit standing is becoming questionable. This decline in loans could be offset, of course, by an increase in bank investments, but banks often fail to follow this policy, for a number of reasons. They may believe that it is not proper for commercial banks to load their portfolios heavily with long-term securities, they may fear that securities will decrease in value, they may anticipate unfavorable clearinghouse balances, or they may fear runs by depositors. In most countries, and especially in the United States where the bank failure record is high and banks have good reason to fear runs, these reasons have been sufficient to produce sizable declines in checking deposits and the money supply. Such decreases in the quantity of money may be prevented in the future if banks become accustomed to en-

⁶ Cf. chaps. 32 and 33.

larging their holdings of long-term investments, if the public ceases to distrust the safety of banks, and if the monetary authorities follow a policy of supplying banks with sufficient excess reserves to put them in a highly liquid condition without the liquidation of loans and investments. If such declines in the money supply are prevented, the intensity of depressions will probably be somewhat lessened.

An invariable characteristic of the downswing is a lowering of the velocity of money. As fear of falling profits, employment, income, and prices spreads through the community, people postpone expenditures and hold money longer. Consumers delay spending and conserve their money, both to protect themselves against want in the dark days ahead and to enable themselves to profit by the expected fall in prices. Enterprisers hold money and postpone purchases of durable equipment and raw materials because they expect to be able to buy them more cheaply later and because they are pessimistic about the future demand for their output. Financial institutions and owners of investable funds also tend to hold money, rather than securities and other investment assets on which the risk of loss is considered great.

The reduction of expenditures traceable to the declines in M and V is manifested partly in a decrease in P and partly in a decrease in T . Trade in goods and securities accumulated in earlier periods—particularly speculative trade—drops, as does also trade in goods and services currently produced. To the individual producer the reduction of expenditures appears as a lowered demand for his product. This lowered demand leads to a decrease in price and therefore to a decrease in output, for cost schedules do not fall so rapidly as prices.⁷

The behavior of the money demand for various kinds of goods and services varies widely, however. The community does not distribute the decrease in its demand proportionately among all the things it has been buying. The most striking contrast in behavior is that between the demand for durable producers' goods and that for non-durable consumers' goods, though the demand for individual articles within each class varies considerably.

⁷ For a caution as to the use of this analysis, see footnote 4 on p. 563.

In general, the demand for consumers' goods decreases less than that for producers' goods. Within the class of consumers' goods, the demand for goods and services that are temporary

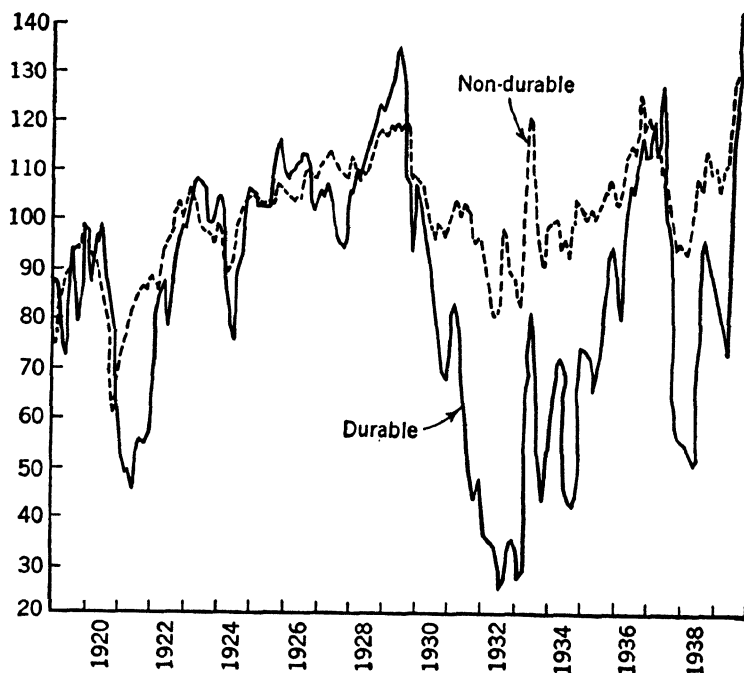


FIG. 16. *Indexes of the Manufacture of Durable and Non-Durable Goods in the United States, 1919-1939, Adjusted for Seasonal Variations. (Monthly average, 1923-25 = 100.)*

Durable manufactures include iron and steel, coke, non-ferrous metals, lumber, cement, polished plate glass, automobiles, locomotives, and shipbuilding. Non-durable manufactures include textiles, leather products, food products, tobacco products, paper and printing, petroleum refining, and rubber tires and tubes. (Source: Board of Governors of the Federal Reserve System.)

in nature and are regarded by their purchasers as necessities usually declines least. Here are included such things as staple goods, household fuel, light, shelter, and those things necessary for the maintenance of one's group status. The need for

these things is felt to be most urgent and their purchase is least postponable. The decrease in demand for consumers' goods of a durable or frankly luxury type is likely to be greater. Under this head are included such things as pleasure automobiles, furniture, clothing that is highly durable or whose main purpose is conspicuous waste, liquor, travel, and expensive entertainment. Luxuries, except perhaps for very inexpensive types, are likely to be sacrificed to more urgent needs, and purchases of durable goods can be postponed to more prosperous times. Many a family during a depression has discovered that the simple way of life is after all not only more virtuous but also happier, that the old car is still quite serviceable and really more dignified than the gaudy new models, that a cleaning and pressing will make the old top-coat as good as new, and that the old furniture has a look of mellowness and comfort not possessed by that currently in vogue. Demand is also likely to shift from higher- to lower-quality goods.

The demand for durable producers' goods suffers the greatest decline of all. The sharpness of this drop is due to the nature of these goods; they do not enter directly into consumption, but instead are used directly or indirectly to produce consumption goods.⁸ They are demanded, therefore, only when the prospective demand for their product—consumers' goods—is such as to make their use profitable. A given decline in the demand for a consumers' good is likely to bring about a magnified decline in the demand for the producers' goods used in its production. Under some conditions, even a lower rate of increase in the demand for consumers' goods is sufficient to effect an absolute diminution in the demand for the relevant producers' goods.

Producers' goods are demanded in any industry for one of three purposes: (1) to increase total productive capacity in order to satisfy an expected increase in the demand for its output; (2) to replace equipment being worn out; and (3) to

⁸ Some producers' goods are used directly to produce consumption goods, others are used to produce producers' goods which in turn are used to produce consumption goods, and so on. In general, the more remote the stage, the greater is the fluctuation of demand.

replace obsolete or obsolescent equipment with more efficient types. In periods of downswing, the demand for all of these purposes falls. As the demand for the end product—consumption goods—not only ceases to increase as it did during the preceding period of prosperity but actually shrinks, existing productive capacity becomes not only sufficient but even redundant, so that the necessity for new equipment with which to expand total productive capacity is likely to disappear. Orders for capital replacements are also likely to fall off, owing both to the decreased wear and tear on machinery resulting from shrunken operations and to the fact that many firms can satisfy the reduced demand for their products without replacing depreciating equipment. Moreover, enterprisers hesitate in periods of downswing to replace old types of machinery with new, for such changes are often considered profitable only if the new equipment can be utilized steadily—the very condition that does not exist in such periods. Some enterprisers may, of course, ignore the lowered demand of the present and the immediate future and purchase additional producers' goods in anticipation of a remote increase in demand, but they are in the minority.⁹

The varying behavior of the money demand for various types of goods and services helps to explain the differences in the behavior of the prices and output of these things in depressed periods. But industries react differently to a given decrease in the money demand for their output. At one extreme the smaller demand leaves prices unaffected and manifests itself solely in shrunken output; at the other it leaves output virtually intact and shows itself in tumbling prices. Just what the reaction will be in any given case depends upon a number of factors, among which are the extent of monopoly and price competition in the industry and the price policies followed if monopolistic elements are present, the rapidity of adaptation of wages and other costs, and the distribution of costs between the categories of fixed and variable costs.

Events during the upswing are, in general, the reverse of those just described. This period includes the phases of recovery and prosperity and extends from the point at which

⁹ The behavior of investment will be discussed further in chap. 30.

revival begins to the point at which the crisis ushers in a new recession. In general, its outstanding characteristics are the opposite of those during the downswing—a rise in current and expected profits, in employment and real income, and an optimistic anticipation that the betterment will continue. These phenomena appear in the equation of exchange as increases in M , V , T , and P .

The money supply is subjected to a powerful upward pull during the upward phase of the cycle, owing to the pressure upon banks to expand their credit. As the prospective profits to be gained through the use of funds in “legitimate” business and speculation rise faster than interest rates, enterprisers increase their demand for bank loans. And the bankers, sharing the general optimism as to business activity, creditworthiness, and prices, usually satisfy these demands up to the limit of their ability. If not prevented by a stern and restrictive monetary policy, the banks are even likely to attempt to expand their lending power by borrowing from the central bank. In the past these influences have been strong enough in the upswing to elicit sizable increases in the money supply. Such increases may be prevented in the future, however, if monetary authorities adopt a sufficiently courageous policy of restriction. If this is done, booms will probably be kept from reaching such heights.

The upswing of business is invariably accompanied by a higher velocity of money. As members of the community adopt more and more optimistic views about the future of employment, incomes, profits, and prices, they enlarge their expenditures and decrease the extent to which they hold money as a store of value. Consumers, expecting ever-steadier employment and rising incomes, feel safer in spending most of their current incomes and reducing their money holdings to a minimum. This tendency toward more rapid spending is greatly reinforced if prices are expected to rise. Enterprisers, anticipating a growing demand for their products and fearing higher prices of raw materials and capital equipment, are impelled to purchase quickly not only to meet their expanded current needs, but perhaps also to enlarge their inventories in anticipation of future requirements. Financial institutions

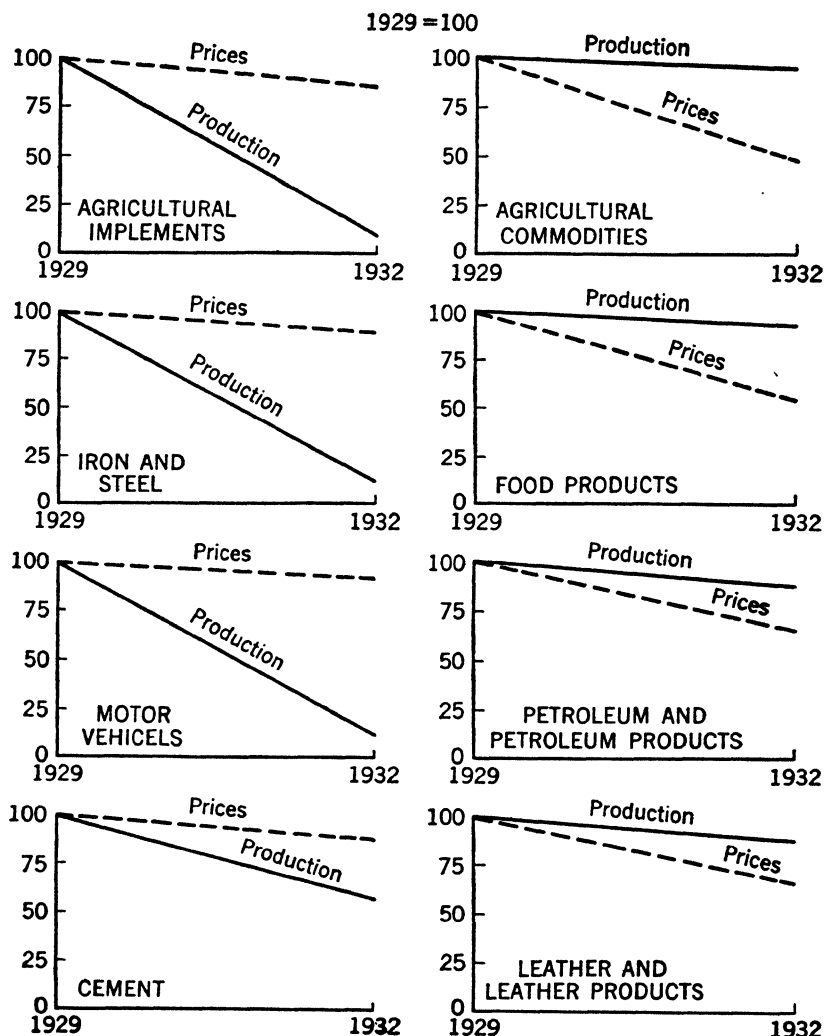


FIG. 17. *Comparison of Price Changes and Production Changes of Selected Classes of Commodities During Depression, 1929-1932.*

The charts were constructed by connecting the index numbers for 1929 with those for 1932, the intervening statistics being ignored. It would therefore be a mistake to infer that the actual declines could be faithfully represented by a straight-line curve. (Source: National Resources Board, *The Structure of American Industry*, 1939, Part I, p. 382.)

and individual owners of investable funds, imbued with a belief that securities and other investment assets will not decrease but will probably rise in price, tend to reduce their money hoards and hold income-yielding assets instead.

The increase in expenditures traceable to the rise in both M and V exerts part of its effects on T and part on P . To some extent the rise in T represents increased trade, particularly speculative trade, in goods, services, and securities accumulated in earlier periods. To a greater extent, however, it represents an enhancement of trade in currently produced goods and services. The expenditure rise is felt by individual producers as a larger demand for their products. This larger demand leads to higher prices and therefore to a rise in output.¹⁰ In the early stages of recovery, when unemployment of labor and capital is still widespread, the increase in demand is likely to be evidenced to a large extent in greater output and to a smaller extent in higher prices. But as recovery proceeds and unemployment shrinks, the obstacles to any expansion of output become greater and the rise in demand is evidenced more and more in prices.¹¹

Though the above description indicates the general pattern of events in the upward phase of the cycle, the behavior of output and prices varies widely in different industries, owing to differences in conditions of both demand and supply. As money demand rises in the upswing, it is not distributed proportionally among all types of output. In general, the demand for consumption goods increases by a smaller proportion than does that for producers' goods, though there are wide variations in the behavior of the demand for individual goods within each class. Within the class of consumers' goods, necessities of a non-durable type—whose demand was most nearly sustained during the downswing—are likely to enjoy the smallest increase in demand, although as people become more prosperous they tend to shift to higher-quality necessities. The demand for consumers' goods in the luxury and durable classes is augmented to a greater extent. People who, during the depression, were forced to forgo the consumption

¹⁰ Cf. the caution as to this analysis in the footnote on p. 559.

¹¹ The analysis on p. 560 is also applicable to the boom period.

of luxuries now feel able to gratify their long-felt hunger for them. They are also in a position to replace their worn and out-of-date durable goods, such as automobiles and furniture.

The demand for durable producers' goods enjoys the greatest expansion of all. As sales of consumption goods rise and are expected to continue to do so, the existing productive capacity is considered too small. Enterprisers therefore purchase repairs and replacements for equipment worn out and neglected during the downswing and buy additional equipment to meet the current and expected increases in the demand for their output. Imbued with high hopes of steady operation, they are also likely to replace obsolete and obsolescent equipment with newer types invented but not exploited during the depression. The whole process is speeded up if enterprisers expect the price of capital goods to rise. The funds with which to purchase this increased volume of capital goods come from three sources: (1) from the greater volume of voluntary savings made available as the social income rises and a larger proportion of it is saved; (2) from money hoarded during the preceding depression; and (3) from new money created by the banking system through the increase in its loans and investments. The producers' goods industries, which were the paupers of the depression, become the princes of the boom.

But not all the dissimilarities in the behavior of the output and prices of various goods are attributable to differences in the rates at which demand increases. Different industries react differently to a given increase in demand. At one extreme the greater demand leaves prices unaffected and manifests itself solely in greater output; at the other, output is virtually unaffected, the rise being manifested almost completely in higher prices. In each case the relative rates of change in output depend on the many factors mentioned earlier—the extent of competition and monopoly in the industry and the price policies followed if monopolistic elements are present; the rate of increase of labor and other costs; and whether costs are largely fixed or variable in nature.

In summary, the upward phase of the cycle is characterized by increases in M , V , and T . MV usually goes up more than

T , so P also rises. Until recently it was believed that a boom could occur only if P rose; but it is now recognized that it is possible for a business boom to occur in the face of stable or even slightly declining prices. This can happen, however, only if a rapid advance in productive efficiency lowers unit costs so much as to permit the emergence of an abnormally wide profit margin between the falling costs and the stable or more slowly declining selling prices. Wholesale prices of current output showed a very slow downward drift during the prosperity period that terminated in 1929; but the general price level, including the prices of everything purchased with money, rose.)

Price Dispersion During the Inflationary Boom of World War II

Though the inflationary boom during and immediately following World War II differed in many respects from peacetime booms, it is interesting to note the great dispersion of prices during the period. Prices of all kinds—wage rates, wholesale prices, retail prices, public utility rates, and others—showed great disparity in their behavior. Epstein, who made a study of the wholesale prices of 367 commodities from 1939 to August, 1946, found that the simple average increase in these prices was 53 per cent, but that the individual prices moved by widely varying amounts; this is shown in Table 60. At one extreme, a few prices actually declined in the face of inflationary pressures; at the other extreme, some prices rose by more than 250 per cent.

A CRITICISM OF THE QUANTITY THEORY OF THE TRANSACTIONS TYPE

One of the principal criticisms that has been directed against the quantity theory of the transactions type is that the price level (P) to which it leads is so comprehensive as to be only a "hotchpotch" and to lack significance. There can be no question as to the inclusiveness of P . It includes the prices of everything included in T , which covers everything sold for money—old and new goods of every type, services of

all kinds, including labor, and securities of every description. It is difficult to conceive of any problem for whose solution a price index that averages wages and the prices of all goods and financial instruments would be the most useful. For analytical purposes the superiority of index numbers that are somewhat less inclusive and more homogeneous in content must be conceded.

TABLE 60. MOVEMENTS OF 367 WHOLESALE PRICES, 1939-AUGUST, 1946¹²

Per Cent of Price Change		Number of Items
Decline	0- 10	11
No change		18
Increase	0- 24.99	122
	25- 49.99	93
	50- 74.99	42
	75- 99.99	19
	100-124.99	20
	125-149.99	7
	150-174.99	17
	175-199.99	9
	200-224.99	4
	225-249.99	1
	Over 250	4
		<u>367</u>

Nevertheless, the shortcomings of P as an index number must not be allowed to reflect unfavorably upon the usefulness and validity of the transactions type of quantity theory as a means of explaining the purchasing power of money for any broad category of things. M , V , and T must be considered in any adequate explanation of the movements of any index number, even one that is far less inclusive than P . For example, if it is desired to explain the movements of only the prices of currently produced goods and services, consideration must be given to the other components of T , for an increase of the trade in securities or in previously produced durable goods may absorb expenditures and diminish them for current output. Or a decline in the trade in securities and previously produced goods may release expenditures for current output. In a very real sense every article entering into trade is a

¹² R. C. Epstein, "Price Dispersion and Aggregative Analysis," *American Economic Review*, June, 1947, pp. 402-407.

competitor for expenditures, and the price level of any large class of articles cannot be explained if any of the competing demands for expenditures is ignored.¹³

Fortunately, the quantity theory can be rescued from this criticism by breaking down the price level, P , into its component parts. The equation of exchange, which has been written as $MV = PT$, may also be expressed as $MV = p_1t_1 + p_2t_2 + p_3t_3 + \cdots p_nt_n$. In this equation, t_1 is the physical volume of trade in a selected class of goods, services, or securities, and p_1 is the price level of this class of things. t_2 is the physical volume of trade in a second class of things, and p_2 is the price level of these things. And so on, until T is divided into as many classes as are desired, each with its own price level. By this process P is resolved into the less inclusive indexes of which it is an average. For example, subsidiary price indexes can be constructed for consumers' goods currently produced, producers' goods currently produced, wage rates, rentals, common stocks, and so on. As to the usefulness of these indexes there can be no question.

THE QUANTITY THEORY APPROACH APPLIED TO THE VOLUME AND PRICE LEVEL OF CURRENT OUTPUT

It is convenient at this point to note briefly another type of the quantity theory that is similar in form but less inclusive in content than the transactions type just discussed. This might be called the income type of quantity theory, for it is concerned primarily with the interrelationships of money and the volume and prices of finished goods currently produced; it is concerned with the trade in and prices of securities and goods produced in earlier periods only in so far as they bear upon current output. Those who utilize this approach claim superiority for it on the ground that it deals with the key

¹³ For an excellent evaluation of the contention that the transactions type of quantity theory should be discarded because it leads to a "hotchpotch" price level, see A. W. Marget, *The Theory of Prices*, Prentice-Hall, New York, 1938, vol. i, pp. 484-600.

prices of the economic system—the prices of finished current output. If these prices are sufficiently high relative to costs, prosperity will obtain; but if they are low relative to costs, economic stagnation will occur.

This form of the quantity theory will be presented here only in outline, partly because of its similarity to that already discussed at length, and partly because the factors with which it deals will be studied in detail in Chapter 30 in connection with the income and expenditure approach.

It is only a truism that the value of the current output of finished goods sold for money in any period is equal to the value of the money paid for these goods. A closer analysis, however, shows that the quantity of money expenditures for them varies with the quantity of money and the number of times each unit of that money is spent for these goods during the specified period. And the total money value of the goods varies with the physical volume of them sold and with their average price per unit. This may be stated in terms of an equation of exchange as $MX = Op$, or $\frac{MX}{O} = p$. In this

equation, M is the average amount of money (cash and checking deposits) in circulation during the period; it is identical with the M discussed earlier. X is the average number of times each unit of M is spent for the current output of finished goods during the period. X is often called the *circuit velocity* of money and is to be distinguished from the transactions velocity (V) already discussed. As will be seen, X is always smaller than V and need not vary directly with it. O is the physical quantity of current output of finished goods sold for money during the period. It is composed of two general classes of goods: (1) consumers' goods and (2) producers' goods. p is the average price per unit of O sold for money in the period.

This form of the theory, like the one preceding, is enlightening only if one analyzes the factors behind the equation of exchange. The behavior of M and the determinants of its magnitude and fluctuations have already been discussed. X , the circuit velocity of money, requires some explanation. It is not the same as V ; it is necessarily smaller, for V includes every spending of M included in X and in addition every

expenditure of M for securities, for goods produced in preceding periods, and for goods sold in different stages of the productive process on the way to their ultimate buyers. The variations in V and X usually display some similarities; in periods when members of the community attempt to increase their "hoards" of money, both V and X are likely to fall, just as both are likely to rise when people attempt to dishoard. But the variations of the two are by no means perfectly correlated. Changes in the speed of spending for securities—especially speculative transactions—for goods previously produced, and for goods sold in the various stages of production may not be accompanied by parallel movements of X . In fact, increased spendings for these things may occur at the expense of X , as people delay or forgo purchases of currently produced goods in order to finance other types of transactions. A "vertical disintegration" of business firms is especially likely to decrease X ; money is likely to "make the circuit" less quickly if the functions of producing the raw materials, of manufacturing, of wholesaling, and of retailing are carried on by separate business units than if all or several of these functions are performed within one business unit.

The determinants of O , the physical volume of finished current output sold for money in the period, were noted in Chapter 26. O is affected by anything that influences the productive capacity of the economy, the intensity of the use of that capacity, and the proportion of output that is offered for sale for money.

In view of the more detailed discussion in Chapter 30, it is sufficient to note here that changes in p are a result of the movements of M , X , and O . When MX rises faster than O , p rises. But when MX falls faster or rises more slowly than O , p falls. Furthermore, changes may originate in any one or more of the factors.

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The Cash-Balance Type of Quantity Theory

INTRODUCTION

THE TRANSACTIONS TYPE OF QUANTITY THEORY DESCRIBED IN Chapters 26 and 27 has enjoyed its greatest popularity in the United States, though it originated abroad and still has many adherents there. In Europe, however, and particularly in England, many economists prefer to use the cash-balance type of quantity theory. It must be emphasized that there is no fundamental conflict between these two types. Outstanding proponents of each have insisted that both the theories themselves and the equations by which they are presented are interchangeable. Differences of opinion arise only as to the relative fruitfulness of the two types of analysis. Advocates of the cash-balance approach claim superiority for their scheme on two counts: (1) It is stated in terms of supply and demand, thereby facilitating the integration of monetary theory with general value theory. (2) It more clearly relates the process of determining the value of money with the subjective valuations of individuals, which are the motivating force behind all economic activity.

ESSENTIALS OF THE CASH-BALANCE APPROACH

According to the cash-balance method of analysis, the value of money depends upon the supply of money and the demand

for it. The value at any time is fixed at the level which equalizes supply and demand, and its variations through time arise from changes in either its supply or its demand, or both.¹ If the supply of money is increased without an offsetting increase in demand for it, or if the demand for money is decreased without an offsetting decrease in its supply, the value of money must fall; prices must rise. But if the supply is decreased without an offsetting decrease in demand, or if the demand is increased without a corresponding increase in supply, the value of money must rise; prices must fall. These familiar propositions of the general value theory represent only the naked outline of the cash-balance approach. To clothe the theory with meaning and to render it useful in explaining real phenomena, it is necessary to analyze the nature of the supply of and demand for money and to ascertain the determinants of their behavior.

THE SUPPLY OF MONEY

The supply of money was discussed at some length in the two preceding chapters, and hence may be passed over quickly here. It is sufficient to note that it is composed of all the cash and checking deposits in the hands of the public.²

THE DEMAND FOR MONEY

(The demand for money within a specified area at a given time is merely the sum of individual demands for money to hold.) The task of explaining the behavior of the aggregate demand for money becomes, therefore, the task of explaining why individual demands for money behave as they do. Each person or firm attempts to adjust the size of his money holdings to the level that promises him the greatest net advantage, considering his resources, his present and future needs, and

¹ The terms "supply" and "demand" are used here in the sense of schedules of the various amounts that would be offered and taken at a series of values.

² Cf. pp. 543-544.

other relevant conditions. He knows well that there are real inconveniences in permitting his holdings of purchasing power in the form of money to fall too low—he may be unable to meet his debts promptly; he may have to pass up an excellent bargain in goods or securities; he may be compelled to confine his purchases to sellers who will extend credit and thereby be forced to pay higher prices or accept lower-quality goods; or an unforeseen expenditure or a failure to receive money at the time and in the amount expected may leave him unable to secure even necessities. The possession of a large reserve of purchasing power in the form of money offers unquestioned advantages. But holding money also involves sacrifices, for by parting with some of his money holdings a person can purchase a consumption good that will immediately yield an income in the form of enjoyment, or an investment asset that will yield a money income. By weighing—in a rough manner, to be sure—the advantages and disadvantages of holding more or holding less money, each person or firm decides upon the size of the money balance that he will hold.

¶ It is essential to note that what each one demands to hold is not primarily a number of monetary units, but rather a quantity of purchasing power in the form of money. He elects to hold sufficient purchasing power to pay for the things that he will buy during a period of time—a week, a month, or two months, as the case may be. It is evident that once a person has fixed upon the amount of purchasing power he wishes to hold in the form of money, the amount of money he must hold varies with the height of prices. If the prices of the things for which he wishes to hold purchasing power are high, he must hold more units of money than he would if prices were lower. For example, if the community determines to hold at any time enough purchasing power in the form of money to buy 100 units of goods, services, and securities, it must hold \$100 in money if the average price per unit is \$1, and \$200 in money if the average price is \$2.

¶ The demand for money at any given time may be expressed as the amount of goods, services, and securities that will be purchased with money during a specified length of time. It varies, therefore, with (1) the magnitude of trade in goods,

services, and securities per unit of time, and (2) the length of the period over whose transactions purchasing power in the form of money is held. It is evident that the larger the physical volume of trade to be effected with money, the greater is likely to be the demand for money. A community whose trade is large is likely to insist on holding a greater volume of purchasing power in the form of money than one whose trade is smaller.³ But the demand for money does not depend solely upon the physical volume of trade; it depends also upon the length of the period over whose trade the community elects to hold purchasing power in the form of money. With a given physical volume of trade, the demand is greater if the community elects to hold enough money to cover its purchases during two months than if it chose to hold only enough to cover its purchases for one month. The length of this period may be expressed as a fraction of a year. If the period is one month, the fraction is $\frac{1}{12}$; if it is two months, the fraction is $\frac{1}{6}$. This fraction will be denoted hereafter by the symbol K .

K is obviously closely related to the velocity of circulation of money. It is, in fact, the reciprocal of V ; hence $K = 1/V$, and $V = 1/K$. If, for example, the community chooses to hold an amount of money equal to its expenditures for two months, $K = \frac{1}{6}$, and total expenditures are at the rate of 6 times the money supply each year; V is at the rate of 6 per year.⁴

Since K and V are reciprocals and are really the same thing regarded from different points of view, they are determined by the same factors. These were discussed in some detail in Chapter 26⁵ and need only be outlined here.

The members of the community attempt to adjust their money holdings to the level relative to their expenditures that promises them the maximum net advantage; but how high this most advantageous level will be depends upon many surrounding circumstances. K will be smallest if: (1) the credit and financial system is highly developed and widely used, so

³ For a discussion of the determinants of T , see pp. 549-553.

⁴ Cf. D. H. Robertson, *Money*, Harcourt, Brace, New York, 1929, p. 195; A. W. Marget, *The Theory of Prices*, Prentice-Hall, New York, 1938, vol. i, pp. 415-420.

⁵ Cf. particularly pp. 543-549.

that loans can be made and secured quickly and investment assets can be liquidated quickly and at small expense; under these conditions people will tend to hold earning assets rather than money as a store of value; (2) the system of payments in use is such that income receipts are frequent and regular and the time of receipt and disbursement is closely coordinated; and (3) people anticipate that their incomes will accrue regularly and in increasing amounts and that prices of goods, services, and securities are likely to rise. K will be larger, however, if: (1) the credit and financial system is poorly developed so that loans can be made and secured only with considerable difficulty and expense and investment assets can be liquidated only slowly and at a loss; (2) the system of payments in use is such that income receipts are infrequent and irregular in amount, and receipts and disbursements are poorly coordinated; and (3) people fear that their incomes will become irregular and decline in amount, and that prices of goods, services, and securities will fall.

When, after considering all the relevant conditions, existing and anticipated, the community fixes upon the amount of purchasing power that it will choose to hold in the form of money, it thereby determines the aggregate purchasing power of the money supply. If, for example, it decides to hold money enough to pay for the things that it expects to purchase during one-sixth of the coming year, the aggregate purchasing power of the money supply will be just sufficient to command those things. This equality is effected by an appropriate adjustment of prices.

For any given set of conditions pertaining to the supply and demand for money, there is only one appropriate price level. If prices are above this level, the aggregate purchasing power of the money supply is less than the amount demanded by the community, so that on balance the people feel that their holdings of money are deficient. They therefore attempt to build up their money balances in one or both of two ways: (1) by decreasing their spendings, or (2) by offering additional goods and services for sale. This continues until prices have fallen sufficiently to raise the purchasing power of the money supply to the desired level. But if, on the other hand, prices are below the appropriate level, the purchasing power of the

money supply is in excess of the amount demanded by the community, so that on balance the people feel that their money holdings are too high. They therefore attempt to draw down their balances, either by increasing their spendings or by withholding from the market some goods and services that would otherwise be offered for sale. This continues until prices have risen sufficiently to lower the purchasing power of the money supply to the desired level.

Since the demand for money determines the aggregate purchasing power of the money supply, however great or small this supply may be, it follows that, *for a given demand*, the purchasing power of each unit of money varies inversely, and the price level directly, with the quantity of money. Suppose, for example, that the community wishes to hold in the form of money purchasing power for 100,000 units of goods, services, and securities. If the money supply is \$100,000, the average price per unit of things purchased will be \$1; if the money supply is \$500,000, the average price of things purchased will be \$5. It must be emphasized that this proportionality of the money supply and the price level is maintained only if the demand for money remains constant; but as a matter of fact, the demand for money is highly variable.

THE CASH-BALANCE EQUATION

The advocates of the cash-balance approach, like the advocates of the transactions type of quantity theory, employ an algebraic equation to facilitate the exposition of their analysis. This equation has several variants, of which the following seems the most useful:⁶

$$M = TKP$$

in which M = the supply of money,

T = the physical volume of trade to be effected with money during the year,

K = the length of the period (expressed as a fraction of a year) over whose transactions purchasing power is held in the form of money,

P = the price level of the things included in T .

⁶ Cf. D. H. Robertson, *Money*, Harcourt, Brace, New York, 1929, p. 195.

This equation states the truism that the value of the money supply (M) is equal to the value of the things for which purchasing power is held in the form of money (KTP). KT is the physical volume of things for which purchasing power is held in the form of money, and P is the average price of each unit of those things. P may vary as a result of changes in any one or more of the factors M , K , and T . In other words, P may be altered by a shift in the supply of money (M), or by a shift in the demand for purchasing power in the form of money, which varies with T and K .

It is interesting to note that the cash-balance equation can be easily converted into the form of equation used in Chapters 26 and 27 in presenting the transactions type of quantity theory. Since $K = 1/V$, the equation $M = KTP$ may be written $M = 1/V(TP)$ or $MV = TP$, the form used in the transactions type of quantity theory.

CHANGES IN THE MONEY SUPPLY AND THEIR EFFECTS ON PRICES

When the money supply is increased, the community is in possession of larger money balances and also, until prices have risen correspondingly, of larger balances of purchasing power in the form of money.⁷ If the increase in the supply is not accompanied by a corresponding increase in the demand for money—and there is no reason to expect that it will be—the holders of the new money feel that their balances are larger than they need be, relative to expenditures, and the possessors of “superfluous” money are disposed to exchange it for economic goods. To this end they increase their demand and expenditures for the goods of their choice—producers’ goods, consumers’ goods, or securities, as the case may be. And the resulting rise in prices is not limited to the things demanded by the first possessors of the new money. As the additional money flows into the possession of the sellers of goods, they in turn feel that their balances are too high and they increase

⁷ This paragraph leans heavily upon L. Von Mises, *The Theory of Money and Credit*, Harcourt, Brace, New York, 1935, p. 139.

their expenditures. This is repeated until many, if not all, prices have been affected, and the supply of and demand for money have again been equated. If the demand remains unaltered, the rise in prices will be proportional to the change in the money supply.

But during the period of readjustment the demand for money is almost certain to be shifted. How much and in what direction it will shift varies from case to case, for it is subject to two sets of influences, one tending to increase and the other to decrease it. The pressure toward a larger demand for money emanates from the increase of T induced by the rise in expenditures.⁸ The pressure toward a smaller demand is traceable to the decline of K . As the community feels more and more secure and expects prices to rise, it tends to hold purchasing power in the form of money to cover its transactions only over a shorter period of time. If the price increase is expected to be precipitous the demand for money to hold may fall to very low levels. At the height of the inflation in Germany there was hardly a retailer or workman who held enough money to cover his needs for more than two or three days.⁹ Virtually any commodity, no matter how illiquid, was a better store of value than money.

Just how an increase in the money supply will affect the demand for money during the readjustment period depends, therefore, upon the relative responses of T and K . If T rises more than K declines, the demand for money will rise; but if T rises less than K declines, the demand for money will fall. Either is possible, and both may occur at different stages of the same expansion, especially if the expansion starts when there is serious unemployment. At first T may increase fairly rapidly while K declines only slightly, owing to the lack of any fear of price rises. But later in the period, as production approaches capacity levels, T can be increased only little more, whereas K may fall to very low levels.¹⁰ This helps to

⁸ Cf. p. 560.

⁹ Cf. Constantino Bresciani-Turroni, *The Economics of Inflation*, Allen, London, 1937, p. 166.

¹⁰ In the last stages of extreme inflations, such as that in Germany, business may become so chaotic that T actually declines while K continues to fall.

explain why prices sometimes rise slowly at first when the money supply is increased, and later climb at an accelerating pace.

The above analysis applies to the transition period. In the long run, after all adjustments have been completed, the effect of an increase in the money supply is to cause prices to be proportionally higher—approximately—than they would have been in the absence of such an expansion. This is because in the long run the demand for money is determined largely, though not entirely, by factors independent of the money supply.

The effects of a decrease in the money supply are roughly the reverse of those just described. When the supply is diminished the community has smaller money balances and also, until prices have fallen sufficiently, smaller balances of purchasing power in the form of money. If the decrease in the supply is not offset by a corresponding decrease in the demand for money, those with diminished balances feel that their money holdings are uncomfortably low and are anxious to replenish them. They attempt to do this either by lowering their expenditures for goods, services, and securities, or by offering these things for sale on more attractive terms. This tends to depress the prices of the things for which expenditures are decreased or whose supply is increased. The price decline is not limited to such things, however, because as the original losers of money replenish their balances at the expense of other members of the community, the tendency to prize money more and goods less spreads. This continues until the value of money has risen sufficiently to reestablish equilibrium between the demand for and the supply of money. If the demand remained unaltered, the decline of prices would be proportional to the decrease in the supply.

But during the period of readjustment the demand for money is almost certain to be shifted, although the extent and direction of the shift vary from case to case because of the opposing forces at work. The decline of T accompanying the decrease in expenditures tends to reduce the demand for money. But the rise in K , caused by increased pessimism as

to employment, incomes, and prices, tends in the opposite direction.

It is possible, of course, that T will fall more than K increases, so that the lessening of the money supply will bring about some reduction in the demand for money, and that prices will therefore fall less than in proportion to the decline of the money supply. More often, however, K increases more than T declines, so that the demand for money is increased and prices fall more than in proportion to the decrease in the supply of money.

These statements apply to the transition period. In the long run, after all readjustments are completed, the effect of a reduction in the money supply is to cause prices to be proportionally lower—approximately—than they would have been had the supply of money not been allowed to decline.

CHANGES IN THE DEMAND FOR MONEY

Variations in the price level may also originate in shifts in the demand for money—in the sense of shifts in the whole demand schedule—resulting from changes in either T or K , or both.

If the community decreases its demand for money, either because of a decline in trade or because shifts in existing or anticipated conditions make it appear wise to hold less money as a store of value, and if the supply of money is not decreased correspondingly, those whose demand has fallen will enter the market with their “surplus” money and will swell expenditures. In some cases they may lower their money balances by reducing the quantity of goods, services, and securities that they offer for sale for money. (This rise of expenditures and decrease in the supply of things offered for sale serves to raise prices, and the price increase will continue until the aggregate purchasing power of the money supply is lowered to the level demanded by the community.) It is important to note that a price rise initiated by a decrease in the demand for money may become cumulative, both because an original

increase in prices can give birth to anticipations of still further price increases and thereby lower the demand for money even more, and because the rise of prices exerts pressure toward an increase in bank credit.

The effects of a greater demand for money, resulting from increases in either T or K , or both, are roughly the reverse of those just described. In the absence of an offsetting expansion of the money supply, the members of the community who have increased their demand for money can build up their balances only by decreasing their expenditures or by offering more things for sale. This lowers prices and continues to do so until the total purchasing power of the money supply has been raised to the level demanded. There is danger that a decline in prices thus originated may become cumulative, for it may initiate expectations of still further declines, thereby raising the demand for money even more and exerting pressure toward a reduction of bank credit.

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Commodity Theories of Money

THE COMMODITY THEORIES OF MONEY ARE AT LEAST AS OLD AS the quantity theories and have assumed even more varied forms. Their common element is a tendency to regard money as merely a specified quantity of the commodity of which it is composed and to attempt to explain its value by analyzing the factors that determine the supply of and demand for this commodity. The similarity between this type of theory and the cash-balance type of quantity theory discussed in the preceding chapter is evident; both are stated in the familiar terms of supply and demand. There is, however, a very significant difference between them. Whereas the cash-balance approach deals with the supply of and demand for all types of money, the commodity theory centers its analysis on the supply of and demand for the commodity out of which the standard money is made, other types of money being taken into consideration only as a factor influencing the size of the demand for and the supply of the standard money. Some variants of this theory are valid and highly useful for analyzing monetary problems, particularly those pertaining to gold production and its relationships to price levels. Others are less useful, and still others are actually misleading. This chapter will be devoted to what the writer considers to be the most valid and useful variant; the others will be referred to only incidentally.

THE VALUE OF STANDARD GOLD MONEY

The commodity theory of the value of money applies most simply to the case in which a country's standard money is metallic, whether it is gold, silver, or some other metal. The discussion that follows refers to gold standard conditions, but the general principles set forth apply as well when some other metal is used.¹ The case of inconvertible paper currencies will be considered later.

As we found in Chapter 4, a country must do the following things to establish and maintain a full gold standard: (1) It must define its standard or basic monetary unit in terms of gold. This it may do either by stating the number of grains of pure gold in the monetary unit or by fixing a mint price for gold. Though they seem at first to differ, both processes are actually the same. For example, when the pure-gold content of the dollar was fixed at 13.71 grains, the price of gold was automatically fixed at \$35 an ounce, because one ounce (480 grains) is divisible into 35 parts containing 13.71 grains each. And to fix the mint price of gold at \$35 an ounce automatically gives each dollar a gold content of $\frac{1}{35}$ of an ounce, or 13.71 grains. (2) The monetary authority must purchase at the same fixed price all the gold offered to it. (3) The monetary authority must sell gold at the same fixed price in unlimited amounts. (4) All other types of money in the country must be kept at a parity with the standard money; this is usually accomplished by providing for free interconvertibility of all types of money. (5) Free import and export of gold must be permitted.

As long as the country's monetary authority maintains the gold standard by buying and selling gold freely at a fixed price, gold must have the same value in both its monetary and its commodity uses. No seller will offer gold in the market for less than the price offered by the monetary authority, and no buyer will pay more than the price at which the mone-

¹ The analysis also applies, though with some modifications, to a bimetallic standard.

tary authority stands ready to sell.² A standard gold money is thus "full-bodied" money; its value as money and its value as a commodity are necessarily equal. Even under a gold standard, however, full-bodied gold coins make up at most only a small part of the money in actual circulation. Most, if not all, of the circulating media is composed of checking deposits, paper money, and coins of various other metals. These are usually far from full-bodied; their value as a commodity is much less than their value as money. The commodity value of the silver in a silver dollar has not approached a dollar for 20 years; the commodity value of the paper, ink, and labor embodied in a \$1000 bill is at most a few cents. Despite the low value of their commodity content, however, these types of money circulate at a parity with gold, owing both to the limitation of their quantity and to the fact that the monetary authority maintains free interconvertibility between them and gold. Thus under the gold standard each unit of these types of money possesses a value equal, not to the value of its own commodity content, but to that of the gold into which it can be converted.

The commodity theorists contend that since the value of a unit of money under gold standard conditions is equal to the value of a fixed amount of gold as a commodity, it is governed by the same factors that determine the value of any other commodity. By the "value" of gold and of monetary units they mean, of course, the purchasing power for other goods and services. This value of gold varies with every change in the relationship between the price of gold and the prices of other things. But since the price of gold must remain virtually constant as long as the gold content of the standard monetary unit remains unchanged, the purchasing power of gold under these conditions depends on the prices of other things; it rises as the prices of other things fall, and declines as the prices of other things rise. We shall deal later with the effects of changing the gold content of the standard monetary unit.

² This description is not strictly accurate for the United States, for the Treasury imposes a small "handling charge" so that the buying price is slightly below and the selling price slightly above \$35 an ounce.

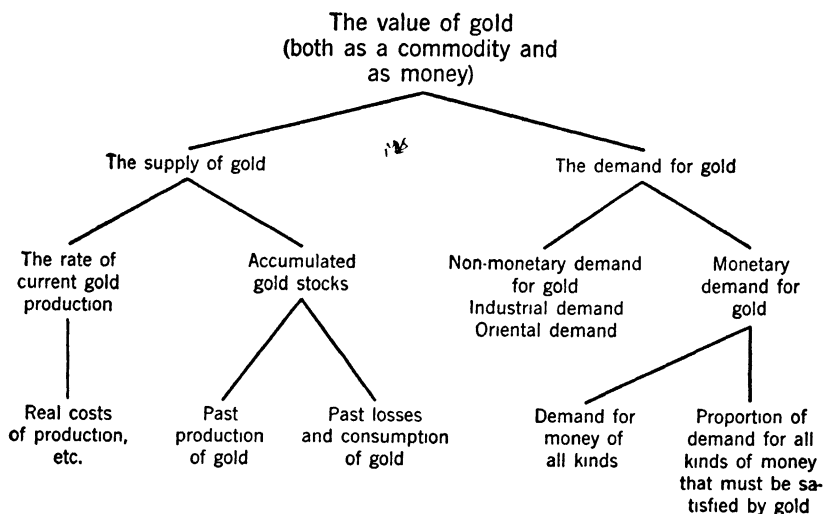


FIG. 18.

Commodity theorists explain the value of money under gold standard conditions by analyzing the supply of and the demand for gold. Such an analysis is not very fruitful, however, unless one analyzes the factors behind supply and demand.

THE SUPPLY OF GOLD

It is a commonplace that the value of any commodity depends to some extent upon its supply, the term "supply" being used to mean a schedule of the various amounts that would be made available at a series of values. The supply of gold is composed of two parts: (1) current production, and (2) accumulated stocks.

THE SUPPLY OF CURRENTLY PRODUCED GOLD: ITS ELASTICITY

Under a given set of conditions relating to the technical difficulties of mining and refining gold, the rate of current

gold production varies with its value. Gold mining is an increasing-cost industry; though some ores are so rich and favorably situated that gold can be extracted from them at a relatively low real cost, the rate of production can be accelerated only by exploiting ores that are progressively poorer and less favorably located. This involves progressively higher real costs per additional unit of output; and since producers tend to expand their output to the point at which added costs of production have risen to the level of added receipts, it is evident that under a given set of conditions as to the technical difficulty of producing gold, the output will be greater if the value of gold is high (i.e., if the price level is low) than it would be if the value were lower (i.e., if the price level were higher). Many economists have contended that this responsiveness of the rate of production to changes in the value of gold tends to stabilize its value, or at least to reduce fluctuations in it that are traceable to shifts in the demand for the metal. Gold production tends to decline when its value is lowered by a decrease in the demand for gold, and it tends to rise when its value is increased by an increase in the demand for it.

However weak this tendency may be, the reason for it is not hard to understand. We have seen that as long as the gold content of the monetary unit is unchanged, the price of gold must remain constant. But the money cost of mining and refining gold—composed as it is of the costs of labor, machinery, explosives, refining, chemicals, fuel, and other supplies—fluctuates with general prices. In a period of rising prices, therefore, the money cost of producing gold rises against the fixed price of gold, thereby tending to crowd out of production the higher-cost mines and sometimes the higher-cost portion of metal within a mine. This decrease in output during a price rise induced by a decrease in the demand for gold tends to retard the price rise by curtailing additions to the gold stock. Events during a price decline induced by an increased demand for gold are roughly the reverse. As prices fall, the money costs of gold production fall, which tends to make profitable the working of ores that were previously unremunerative. The resulting rise in the rate of gold production tends to enlarge the monetary base more rapidly and to retard

the price decline. Unfortunately, however, the stabilizing effect exerted by the elasticity of production is too weak in short periods to be of much avail in offsetting shifts in the demand for gold. The reasons for this will be seen later.

Shifts in the Supply of Currently Produced Gold

Though under a given set of conditions pertaining to the real cost of mining and refining gold the elasticity of production tends in some degree to retard and limit price level fluctuations induced by shifts in the demand, it is evident that shifts in the supply schedule of newly produced gold may occur and may tend to bring about changes in the value of gold. Any development that decreases the quantity of labor and capital required to produce a unit of gold increases the supply schedule of new gold and thereby tends to lower the value of gold. Some of the most important phenomena capable of exerting this type of influence are: (1) discoveries of new and rich deposits, such as those in California and Australia around 1850 and in South Africa, Alaska, and the Klondike at the end of the nineteenth century; (2) inventions and improvements that lower the real costs of mining gold and transporting it to market (included here are the development of hydraulic mining; the invention of more efficient machinery for digging, hoisting, and other mechanical processes around the mine; and cheaper transportation for both gold and mining supplies, an interesting recent innovation here being the use of airplanes to carry men and equipment to, and gold from, regions that were previously inaccessible); and (3) perfection of more economical processes of refining, such as those in which chlorine or cyanide of potassium is used. These developments that lower the real cost of producing gold tend to increase the output and to lower its value.

Conversely, anything that increases the real cost of mining new gold tends to decrease the output and to raise the value. The most common example of this is the exhaustion of the more lucrative ores faster than new ones of comparable richness and location can be discovered and brought into production.

The Cost of Production and the Value of Gold

It is evident, then, that the rate of gold output is affected by the cost of producing the metal. But how valid is the belief held by some that the value of gold is determined entirely by its cost of production? This can best be answered by considering two less comprehensive questions. The first is, "How closely is the rate of current gold output related to its cost of production?" We have seen that shifts in costs tend to bring about shifts in the rate of output; but the full effects are felt only after a delay, which is sometimes very long. A decline in the cost of producing gold may not elicit a sizable increase in the rate of output for several years. Most gold mining is now a large-scale business involving lengthy preparations and heavy investment in fixed capital which, after being installed, remains usable for a long period. As a result, it may be unprofitable to open new shafts in response to lowered costs unless costs are expected to continue at the low level for a considerable time. And even when it is decided to open new mines, there is in many cases an interval of from five to eight years between the initial preparations and the sale of the first gold produced.³ Similarly, a rise in the costs of gold production exerts its full curtailing effects on output only after a long interval, because mines often continue to operate until the opened veins are exhausted or until most of the fixed capital is worn out, despite the fact that they are bringing in less than the normal rate of return on the original investment in them. For these reasons, the rate of output may remain out of line with the costs of production for long periods, during which mine operators enjoy large windfall profits or suffer windfall losses.

The second question to be considered is, "How closely is the current cost of gold production related to the total supply of gold?" The relationship is very remote, and for two major reasons. The first has just been discussed—the slowness with which the current rate of gold output adjusts itself to changes in production costs. More important, however, is the degree to which the supply of gold is composed of stocks produced

³ L. D. Edie, *Money, Bank Credit, and Prices*, Harper, New York, 1928, p. 241.

in the past. Owing to its physical imperishability and its technical treatment as money—as money it can be used repeatedly with but little physical deterioration—a large part of the gold produced in past centuries is still available to meet the needs of today. In 1939 the monetary gold stock of the world contained about \$24,500 million of gold, and there was an additional large though undetermined amount in oriental hoards and in gold merchandise. But though production in 1939 was the largest ever recorded for a single year, it was only about \$1400 million, or less than 6 per cent of the existing stock of monetary gold. For several decades before the depression of the 1930's, the annual production ranged between 2 and 4 per cent of the accumulated stock of monetary gold. Because of this low ratio of current production to accumulated stock, the supply of gold behaves quite differently from the supply of most other types of goods, particularly non-durable goods. Whereas a doubling or halving of the current production of coal or cotton usually leads to a roughly proportional change in the total amount of these commodities available for use, an even greater percentage change in the rate of gold production would affect the total available stock of gold only little over a short period. Like the supply of other highly durable goods, such as factory buildings and railways, the supply of gold is relatively inelastic for protracted periods.

The remoteness of the relationship between the supply of gold and the current cost of production is sufficient reason for rejecting as inadequate and misleading the cost-of-production theory of the value of gold, particularly as applied to short periods. The theory would still have to be rejected as inadequate and incomplete, however, even if the gold supply did depend on the current cost of production, for it does not indicate a determinate value for gold. As we saw earlier, there is not just one cost of producing gold at any given time; there is a cost schedule that reflects the increasing-cost nature of the gold mining industry. If at any given time the cost of mining and refining gold ranges all the way from a dollar to hundreds of dollars an ounce, how can it be said that the value of gold is determined by its cost of production? As in the case of any economic good, it is only at the margin, if anywhere, that the

value and the cost of production tend to be equal, and the location of the margin varies with the magnitude of demand.⁴ The demand for gold must therefore be considered in any adequate explanation of its value.

Before proceeding to an examination of the demand for gold, however, it may be useful to summarize our findings relating to the supply and the value of gold. (1) The supply—in the schedule sense—is made up of current gold production and of stocks produced in the past; the second component is by far the larger. (2) The supply is highly inelastic over short periods, partly because of the slow adjustability of the rate of gold output to changes in its costs of production and partly because of the quantitative importance of accumulated gold stocks. (3) Though increases and decreases in the value of gold induced by shifts in demand tend to be retarded and limited to some extent by increases and decreases in the rate of output, the stabilizing effects exerted in this way are weak over any except long periods, owing to the inelasticity of the supply noted in (2). And (4) the cost-of-production theory of the value of gold must be branded as inadequate and incomplete, though it does call attention to one group of influential factors.

THE DEMAND FOR GOLD

One variant of the commodity theory must be flatly rejected. This is the contention that the value of gold as money is determined by its value as a commodity for non-monetary uses—that this value for uses other than money is first determined by the supply of gold and the demand for it in those non-monetary uses, and that the resultant value as a commodity is then imposed upon it as money. This proposition is no more true than the opposite statement that the value of gold as money determines its value as a commodity for non-

⁴ Knut Wicksell, *Interest and Prices*, Macmillan, New York, 1936, p. 36. A further objection to the cost-of-production theory of the value of gold arises from the fact that much gold is produced as a joint product with other metals—such as lead, zinc, copper, and silver—so that an accurate allocation of total costs is impossible.

monetary uses; indeed, the latter is much nearer the truth, for the monetary demand is much greater than the non-monetary demand, and gold would surely have a lower value if it were not demanded for monetary purposes. But neither extreme position is tenable. The value of gold in all its uses is determined simultaneously by its total supply and its total demand, and the latter is composed of the demand for both monetary and non-monetary uses. Any analysis that ignores either type of demand is incomplete.

The Non-Monetary Demand for Gold

From primitive times the non-monetary demand for gold has been sufficient to endow this metal with a relatively high value, even if it had not been chosen for use as money. Its first important uses were probably for religious purposes and for personal ornamentation. The desire for self-ornamentation and the joy of conspicuous waste have apparently not been eradicated from mankind in the process of civilization, for considerable amounts of gold are still utilized in watches, bracelets, rings, chains, pins, and other forms of personal adornment. Gold is also demanded for making plate, for gilding books and other articles, for producing rich architectural effects on domes and interiors of building—particularly public buildings and houses of worship—for certain manufacturing processes, and for dental and surgical purposes. The aggregate of these demands is usually referred to as the industrial demand for gold.

The value of gold is obviously influenced by the magnitude of the industrial demand. An increase in this demand—in the sense of an increase in the demand schedule—leaves less gold for monetary uses and tends to raise its value both as a commodity and as money. And a decrease in the industrial demand—brought about by such factors as a decline in the community's desire for gold ornaments or the development of more satisfactory substitutes—allows more gold to flow into monetary uses and tends to lower its value both as a commodity and as money.

Though shifts in the industrial demand—in the sense of

shifts in the demand schedule—may alter the total demand for gold and thereby its value, there is some tendency for the elasticity of the industrial demand at any time to retard and limit price level fluctuations induced by shifts in the gold supply or in other types of demand for it. Owing to the constancy of the price of gold under the gold standard, prices of articles made of this metal tend to rise less in periods of general price increase and to fall less in periods of general decline than do prices of most other commodities. When the price level rises, therefore, the consumption of gold for industrial uses usually rises, thereby reducing the volume available for monetary and other purposes and tending to retard the price rise. But when the price level falls, the consumption of gold in industry usually falls, thereby releasing a larger part of current production for monetary and other uses and militating against further price declines.

That shifts in the industrial demand for gold serve to alter its value and that the elasticity of this demand acts to some extent as a shock absorber to retard variations in its value emanating from changes in the supply of this metal or in other types of demand for it is undoubtedly true. Over a long period the behavior of the industrial demand is an important determinant of the value of gold. But its efficacy in explaining changes in value over short periods must not be exaggerated. The industrial demand is only a very small part of the total demand. Though such figures are subject to a high degree of error, it is estimated that during the decade of the 1920's the industrial demand in western nations fluctuated around \$100 million per year, roughly the same average amount being used annually by the Orient. But about \$10 billion of gold was held in the monetary systems of the world.⁵ Because the industrial demand is such a small part of the total, even large percentage variations in it exert only small effects on the aggregate demand in the short run; and its elasticity would have to be great indeed to absorb any considerable part of the effects of variations in the gold supply or of fluctuations in the other types of demand for this metal.

The other component of the non-monetary demand is the

⁵ At \$20.67 a fine ounce.

oriental demand (largely India's) for gold to hoard or to use for ornaments.⁶ As already noted, an annual average of roughly \$100 million in gold was taken by the Orient during the decade of the 1920's, though the amount varied widely from year to year. In years that were highly prosperous for that section of the world, particularly for India, large amounts were imported. In bad years, on the other hand, gold imports were much smaller, and sometimes were less than exports. It is evident that the value of gold is influenced by this oriental demand. As was found to be the case with the industrial demand, however, the oriental demand constitutes such a small part of the total that its fluctuations exert only a slight effect on the value of gold during short periods. But it can have quite important effects over longer periods. To use an extreme example, if the Orient should import no more gold for twenty years—especially if it should disgorge large amounts of the metal—the amount available for industrial and monetary uses would be much greater and the value would probably be lower than if the oriental demand continued at the level of the 1920's. A large and sustained increase in this demand would produce effects of an opposite nature.

The Monetary Demand for Gold

By far the largest part of the aggregate demand for gold at any time is that for use in the monetary systems of the world. Not only do the monetary systems hold more than \$28 billion of the gold accumulated in the past, but they absorb each year half or more of the current output. It is evident, therefore, that fluctuations in this demand are capable of exerting a powerful influence upon both the total demand for and the value of gold. They are the most important single source of changes in the value of gold during the various phases of the business cycle, and they rank in importance with fluctuations

⁶ C. O. Hardy contends that the oriental demand for gold is more properly classified as a monetary demand, because the gold is desired for use as a store of value. He concludes, however, that since it behaves quite differently from the monetary demand for gold in the remainder of the world, it is more conveniently discussed as part of the non-monetary demand. Cf. *Is There Enough Gold?* Brookings Institution, Washington, 1936, pp. 78-79.

in the gold supply as determinants of the value of the metal over long periods.

The magnitude of the world's demand for gold for monetary uses varies with two general factors: (1) the world's demand for money of all kinds, and (2) the proportion of this demand that is satisfied by gold. The demand for gold for monetary purposes may rise because of an increase in the demand for money of all kinds, because of a rise in the proportion of this demand that must be satisfied by gold, or because of a combination of the two. And conversely, the monetary demand for gold may decline because of a decrease in the demand for money of all kinds, because of a decrease in the proportion of this demand that must be satisfied by gold, or because of a combination of the two.

The demand for money of all kinds and the factors determining its behavior have already been discussed.⁷ It is therefore sufficient to recall here that it varies with the physical volume of trade to be effected with money and with the proportion of that trade for which people insist on holding purchasing power in the form of money, and that it is highly variable, showing both long-term changes and wide cyclical fluctuations.

Only a small part of the total demand for money is satisfied by gold, however. By far the larger part is satisfied by other types of money, such as non-gold coins, paper money issued by commercial banks and governmental authorities, and—most important of all—checking deposits at banks. Since at most only a small gold reserve is held behind these types of money, they serve as “economizers” of gold, or as “substitutes” for it. On account of the great volume of these “substitute” types of money, both the monetary demand and the value of gold are much less than they would be if the entire demand for money had to be satisfied by gold alone.

Moreover, the behavior of the monetary demand for gold is altered by fluctuations in the proportion of the demand for money that is satisfied by types of money other than gold. Any development that increases the proportion of the demand for money that is satisfied by the “substitute” types

⁷ Cf. chap. 28, especially pp. 585–587.

tends to decrease the demand for gold and thereby to lower its value. Some of the most important factors leading to greater "economies of gold" are the following: (1) The spread of commercial banking and the increased use of checking deposits as money. Because of the fractional reserve principle, each dollar of reserves can support several dollars of checking deposits. (2) An increase in the number of dollars of checking deposits erected on each dollar of bank reserves, owing either to a reduction of the legally or customarily required reserve ratio or to a diminution of excess reserves. (3) An enlargement of central bank credit relative to gold reserves, because central bank credit can be used as cash for hand-to-hand circulation or for bank reserves. (4) Prohibition of the domestic circulation and hoarding of gold coin and bullion. This concentrates a larger proportion of the monetary gold in the hands of the monetary authorities and permits the erection of a larger superstructure of other types of money. (5) The spread of the gold-exchange standard, which in effect permits gold to serve as reserves for two or more countries simultaneously. (6) The issue of additional paper money and of subsidiary coins of metals other than gold.⁸ (7) The abandonment of the gold standard and the export of gold by a country or countries that thereafter operate on non-gold standards.

Just as the above developments can increase the total supply of money relative to the supply of monetary gold and can decrease the monetary demand for gold—or at least retard its rise—developments of an opposite nature can decrease the proportion of the demand for money that is satisfied by gold "substitutes" and can serve to increase the demand for gold. Some of the most important factors that shift upon gold a larger proportion of the demand for money are the following: (1) A diminished willingness of the public to hold checking deposits rather than other types of money, owing to such factors as fear of bank failures, the imposition of taxes on checks, or the introduction of service charges by the banks. The resulting loss of reserves may force the banking system to reduce checking deposits by an amount equal to several times the cash drained off. (2) A decrease in the number of

⁸ Other than gold certificates which require 100 per cent gold backing.

dollars of checking deposits erected on each dollar of bank reserves, because of either a rise in the legally or customarily required reserve ratio or an accumulation of excess reserves. Banks are especially likely to accumulate excess reserves in periods of business stagnation. (3) A decrease in outstanding central bank credit relative to gold reserves. This may be considered as either a hoarding of additional gold by central banks or a reduction in the quantity of "central bank" money outstanding. (4) Greater domestic hoarding of gold coin and bullion rather than other types of money. (5) A decrease in the use of the gold-exchange standard and a shift to a full gold standard. (6) The withdrawal of non-gold subsidiary coins or paper money from use, so that gold money or money requiring larger gold reserves must be used in their place. (7) The adoption of a gold standard by nations previously using inconvertible paper, silver, or bimetallic standards. This widens the sphere of circulation of gold and increases the monetary demand for gold relative to the demand for money in general.

It is evident, then, that the monetary demand for gold, because of its magnitude and its high degree of variability, is one of the most important determinants of the value of gold.

THE COMMODITY THEORY APPLIED TO INCONVERTIBLE PAPER MONEY

We have seen in the preceding pages that the commodity theory can be used to explain the value of money under a gold standard, which requires that the value of the monetary unit be kept at a fixed level in terms of gold. Some economists have insisted, however, that this theory can also be applied to an inconvertible paper money which, instead of being fixed in terms of gold, is free to fluctuate in terms of that metal. They hold that the value of such a money is determined not by the commodity value of the paper of which it is composed—history records only a few cases in which the value of a paper money has fallen so low—but rather by the worth of the gold into which the money will probably be made con-

vertible in the future. According to this view, the purchasing power of an inconvertible paper money at any time depends upon the community's expectations as to (1) the amount of gold into which the monetary unit is likely to be made convertible; (2) the degree of probability that such convertibility will in fact be established; (3) the purchasing power of the gold into which the money will be made convertible; (4) the length of time that will probably elapse before the establishment of convertibility; and (5) the rate of interest that must be sacrificed if paper money is held rather than passed along. In other words, these economists contend that the value of an inconvertible paper money at any time is equal to the discounted value of the gold into which the paper money will become convertible in the future. It is significant that virtually all the proponents of this theory believe that only money with a considerable value for non-monetary purposes will be accepted in trade and that its value as money is determined by its value as a commodity. They are forced, therefore, to resort to some such theory as the one under consideration to explain why paper money will circulate with any value at all.

There are undoubtedly cases in which the prospect of future convertibility into gold does influence the value of a paper money which for the time being is inconvertible.⁹ The most important of these cases is that in which the date and terms on which the paper money is to be made convertible into gold have been made public. This prospect of convertibility sets a lower limit—though one that varies with expectations as to the probability and terms of future convertibility—to the value of a paper money. The value of the paper money cannot fall below the level of what the community as a whole believes to be the present discounted value of the gold into which the money will probably become convertible; any tendency for it to do so would offer chances for gaining abnormally large profits by holding money for later conversion into gold and would induce enough additional hoarding of paper money to raise its value to the level just described. The value of an inconvertible paper money may, however, remain far above this lower limit. There have been many

⁹ Cf. R. G. Hawtrey, *Currency and Credit*, Longmans, Green, London, 1930, pp. 32–33.

cases in which inconvertible paper currencies with virtually no prospect of redeemability in gold have continued to be accepted and have circulated at a value far greater than was justified by their prospects for future conversion. There have even been cases in which a paper money completely divorced from gold has come to possess purchasing power greater than that of the amount of gold into which it was previously redeemable. The proponents of the theory under discussion cannot explain this phenomenon without resorting to highly unrealistic assumptions. Their fundamental error lies in their contention that money is valued only for its commodity content. Once a paper money has been established by law or custom as a means of payment, it can have value as money quite apart from its value as a commodity. With appropriate limitation of their supply, the demand for these pieces of paper to carry on the trade of the community may easily endow them with a higher purchasing power than they would have as tenuous claims upon an undetermined amount of gold into which they might be converted at some indefinite and remote future date.

EVALUATION OF THE COMMODITY THEORY

The commodity theory of the value of money cannot be validly applied to all types of money, for, as we have seen, it fails when applied to inconvertible paper money. Moreover, in the hands of some of its advocates it is often one-sided and inadequate, if not fallacious, when applied to money under gold standard conditions. Some of the most common errors of the commodity theorists are to overstress the role played by the cost of producing gold, to overestimate the elasticity of gold supply—especially in short periods—to contend that the value of gold as money merely reflects and is determined by its value as a commodity, and to underestimate the causative influence of the monetary demand for gold. But if these pitfalls are avoided, as has been attempted in this chapter, the commodity theory can contribute to our understanding of the value of money under a metallic standard.

It is the writer's opinion, however, that even when the commodity theory is stated in its most valid form it throws less light upon the process of price level determination and the state of economic activity than does a carefully formulated quantity theory. There is nothing in the commodity theory that is not included in careful and accurate formulations of the quantity theory. Quantity theorists have from the beginning insisted that the cost of producing gold, the stock of accumulated gold, and the non-monetary demand for gold must be considered in explaining the supply of monetary gold, which, in turn, is one—though only one—of the determinants of the money supply. And in their analysis of T , K (or V), and the ratio of the total money supply to monetary gold, they have explained more clearly than have the commodity theorists the phenomena that the latter include under the head of the monetary demand for gold. An adequate and realistic explanation of price level determination must explain in terms of human decisions why the flows of money expenditures and of the physical volume of trade behave as they do. The quantity theory, though far from perfect, surely ranks ahead of the commodity theory in this respect.

ALTERATIONS IN THE PRICE OF GOLD AND THEIR EFFECT ON PRICE LEVELS

Monetary theorists have long been interested in the effects exerted upon the general level of prices by alterations in the gold content of the monetary unit. This interest has been much heightened in recent years by two events. One is the persistent proposal by some monetary reformers that the price of gold be regulated by the monetary authorities in such a way as first to raise the prices of goods at wholesale to a desired level and then stabilize them there. The other was the increase, in 1933 and 1934, of the price of gold in the United States from \$20.67 to \$35.00 an ounce, followed some time later by similar actions on the part of several other countries.

In analyzing the effects of changes in the price of gold, two cases must be distinguished. The first is that in which all gold

standard countries change their price of gold simultaneously and to the same extent. This has never in fact occurred, but many of the proposals for monetary reform have suggested its desirability. The second is that in which one country alone changes its mint price of gold.

Alterations in the Price of Gold in All Gold Standard Countries

What would be the effects on price levels if all gold standard countries simultaneously doubled or halved the price of gold? All schools of monetary theorists agree that increases or decreases in the mint price of gold tend to produce increases or decreases in price levels, but they disagree heartily as to the extent of the effect on prices, the certainty that prices will respond, and the length of time required for price changes to be effected. Some of the more naïve theorists have contended that changes in the price of gold will alter the price level proportionally and immediately, or nearly so. Though this group includes a few incautious quantity theorists, it appears to be composed largely of people who believe that the value of money depends upon the value of the money material in its commodity uses. It is obvious, these commodity theorists contend, that to halve or double the amount of gold of which the dollar is composed and for which it is valued will halve or double the purchasing power of the dollar. This theory must be rejected. It is contradicted by experience and it assumes an automatic and even mystical causation that does not exist in an economic system activated by human decisions. No one has yet explained why a given change in the mint price of gold might reasonably be expected to bring about such a shift in the money demand for goods and services as to effect an immediate and proportional change in their prices. This is not to deny that the long-run effect on prices may be approximately proportional to the change in the price of gold, though it need not be.

A change in the price of gold made by all gold standard countries would influence price levels principally through its effect upon the money value of the monetary gold stock and hence upon the size of the money supply. Alterations in the

price of gold change the money value of the gold stock in two ways: by changing the money value of gold stocks already accumulated, and by accelerating or slowing down the rate of gold production.¹⁰ Early in 1939, the monetary systems of the world held about 700 million ounces of gold. At \$20 an ounce this gold would be valued at \$14 billion; at \$35 an ounce it was valued at \$24,500 million. An increase in the price of gold also enhances the profitability of gold mining and stimulates gold production until such time as higher prices raise production costs sufficiently to render the added production again unprofitable. This stimulus may continue for a considerable period. A reduction in the price of gold, on the other hand, decreases the profitability of gold mining and discourages gold production until the money costs of production have declined as much as the price of gold.

It must be emphasized, however, that it is by no means necessary for a change in the money value of the monetary gold stock to bring about a proportional change in the total money supply; this is particularly true in the shorter run. What the reaction of the total money supply will be and when it will occur depends on many conditions, of which we shall consider some of the more important. These are the cases in which (1) all the monetary gold is held by members of the community, who absorb all the pecuniary gains or losses resulting from changes in the mint price of gold; (2) all the monetary gold is held by the commercial banks, which assume the profits or losses resulting from the changed price of gold; and (3) all the monetary gold is held by the central banks and treasuries, which take the gold profits and losses.

If all the gold were held by the people, if gold coin were the only type of money in circulation, and if all the previously issued coins were taken to the mint, recoinced into new units containing the same aggregate of gold, and paid out into circulation, a given change in the price of gold would effect a

¹⁰ The monetary gold stock may also be altered by induced changes in gold consumption for non-monetary purposes. A rise in the price of gold is likely to discourage the industrial use of gold, at least until other prices have risen proportionally, thereby making more gold available for use as money. A decrease in the price of gold would have opposite effects.

proportional change in the money supply. Suppose, for example, that the only money a country has is 1 million gold rubles weighing 10 grains each. If the government decreases the gold content of the ruble by 50 per cent, each of the old rubles can be coined into two of the new type, and the money supply will be doubled. Conversely, if the weight of the ruble is doubled and all the gold is recoined, the money supply will be halved. But this is obviously far from an accurate description of what occurs when a large part of the money in use is in the form of non-gold cash and of checking accounts, and when most of the monetary gold is held by commercial banks, central banks, and governmental authorities.

If all the monetary gold were in the hands of the commercial banks and if they were permitted to enjoy any profits and were forced to bear any losses arising out of increases and decreases in the price of gold, changes in the price would have the immediate effect of altering the volume of commercial bank reserves. No actual rise or decline of the money supply in the hands of the public would occur, however, until the banks expanded or contracted their loans and investments. This might happen quickly or only slowly. If bank reserves were reduced by a decrease in the price of gold, the banks might contract their credit by raising interest rates, by rationing loans, and by selling investments. On the other hand, they might not contract credit at all or they might do so only slowly. If they had sufficient excess reserves, they could resist the pressure for contraction for some time; even in the absence of excess reserves they might postpone contraction and repair their reserve position for a time by borrowing from the central banks. Whether or not the latter course would be open to them would depend on central bank policy. But if bank reserves were enhanced by an increase in the price of gold and the banks did not use these funds to retire their loans at the central bank, they would feel a pressure to expand their loans and investments in order to convert sterile excess reserves into earning assets. To expand bank credit in periods of prosperity is easy enough, though it may require some time; it is likely to be much more difficult in periods of business stagnation. At such times the banks may fear to buy invest-

ments or to lend on short term, and even lower interest rates and more liberal standards for judging loan applications may not bring forth a sufficient demand for loans to utilize all the added reserves. In summary, even if alterations in the price of gold do bring about corresponding changes in the volume of commercial bank reserves, the money supply may be altered only slowly and after a considerable delay, owing to the dependence of the volume of checking deposits on the lending and investing policies of banks.

In most cases, however, changes in the price of gold do not result in immediate and proportional changes in the volume of commercial bank reserves. In modern monetary systems, under which most of the monetary gold is concentrated in the vaults of central banks and governments, most of the profit or loss resulting from increases or decreases in the price of gold accrue directly to these holders, and in recent times governments have usually appropriated any profits accruing to private holders of gold. Under these conditions, therefore, alterations in the price of gold affect the volume of commercial bank reserves only when the central bank and government permit them to do so. This may occur slowly, and then only after a delay. For example, though the United States Treasury realized a profit of \$2808 million when it lifted the price of gold from \$20.67 to \$35.00 an ounce in 1934, only a very small part of that profit was made available to banks; virtually all of it was hoarded by the Treasury. Several of the European governments that raised the price of gold followed a somewhat similar policy.

For any one or more of the above reasons the money supply may fail for some time, perhaps for a long time, to vary proportionally with the price of gold. But even if the money supply did move immediately and proportionally, the price level would not necessarily respond in a similar way, because of changes in the velocity of money and the physical volume of trade. The conclusion must be, therefore, that gold standard countries as a group are likely to find that manipulation of the mint price of gold is not by itself an efficacious method of raising prices in the short run or of stabilizing them throughout the business cycle. It does seem likely, however,

that this method might be used to obviate long-term rises and declines in prices traceable to "excesses" or "shortages" of the gold supply.

Changes in the Price of Gold in One Gold Standard Country

The preceding discussion concerned the case in which all gold standard countries altered their price of gold simultaneously and to the same extent. The present section will deal with the case in which one country, acting alone, alters the gold content of its monetary unit while other nations maintain theirs unchanged. When compared, these cases show some similarities and some differences. The second case is like the first, in that a change in the price of gold alters the value of the country's accumulated gold stock and stimulates or discourages gold production there until such time as offsetting changes in the costs of production have occurred. For example, the increase in the price of gold from \$20.67 to \$35.00 an ounce in January, 1934, raised the value of the monetary gold that the United States then possessed from about \$4 billion to about \$6800 million, and greatly stimulated domestic gold mining. The case to be discussed in the present section also resembles the one discussed earlier, in that the size of the money supply need not vary immediately and proportionally with the money value of the monetary gold stock. It differs from the earlier one primarily because of the resulting differential between the domestic and the foreign purchasing power of gold.

Let us see how and why a unilateral change in the mint price of gold will alter exchange rates between gold standard moneys. The monetary units of countries on a gold standard exchange for each other in the foreign-exchange market at a ratio closely approximating their relative gold content. If, for example, the dollar of country D contains 20 grains of pure gold and the guilder of country G contains 5 grains, 1 dollar will command about 4 guilders in the foreign-exchange market. Actual market rates of exchange can deviate from this level only by a small amount that measures the cost of transporting gold from one country to the other. Any alterations

in the relative gold content of the monetary units must therefore bring about approximately corresponding shifts in the exchange rates between them. Suppose, for example, that D reduces by half the gold content of the dollar—lowers it to 10 grains—and that other gold standard countries, including G, maintain their monetary units unchanged in terms of gold. The dollar must immediately fall by half in the foreign-exchange market; although it could formerly purchase 4 guilders, it can now purchase only 2. This decline of dollars in the foreign-exchange market, which will be considered by the residents of D as a doubling of the price of foreign gold money, will immediately bring about in D a rise in the dollar prices of both imported and exported goods, and will stimulate exports and discourage imports until such time as the domestic price level has risen as much as have the prices of gold and of foreign money.

It is easy to see why doubling the price of foreign money will increase in D the prices of imported goods in terms of dollars and will tend to discourage purchases abroad. Before the devaluation of the dollar, when 1 dollar would purchase 4 guilders, a commodity selling in country G for 4 guilders could be purchased for 1 dollar and could be sold in D for 1 dollar plus an additional amount sufficient both to cover the costs of moving the goods and to allow importers the necessary profit. After the devaluation of the dollar, however, when the dollar will buy only 2 guilders, if that same commodity still sells in G for 4 guilders, it will cost not 1 but 2 dollars in D. In the face of this rise in the prices of imports, residents of D will tend to curtail their purchases abroad until such time as their money incomes and the price levels of domestic goods have risen as much as foreign-exchange rates.

Doubling the price of foreign money will also raise the dollar prices of D's exports. Before the devaluation of the dollar, a commodity that could be sold abroad for 4 guilders would sell in D for 1 dollar minus the cost of getting it to the foreign market. But if after the devaluation of the dollar the commodity can still be sold abroad for 4 guilders, its price in D will rise to 2 dollars minus the cost of shipping it abroad, because the 4 guilders received in payment for it can now

be converted into 2 dollars. This rise in the prices of exports will encourage exports as long as the domestic price level does not rise as much as the prices of gold and foreign exchange.

The argument up to this point seems to indicate that the unilateral doubling of the price of gold by D will result in a doubling of the dollar prices of both importable and exportable goods. This can occur, however, only if the foreign prices of these goods—the guilder prices of the goods in G, for example—remain unaffected. And such a condition is not likely to persist. Actually, the foreign prices of these goods will be lowered somewhat, owing to the decrease in D's demand for importable goods and to the increase in its supply of exports. But the fall of prices abroad will not be in proportion to the fall of the foreign-exchange value of the dollar, for D's demand and supply make up only part of the total demand and supply that determine prices in the world markets. Thus the principle remains that the devaluation of the dollar will tend to raise the prices of importable and exportable goods in D, though the extent of the rise is not likely to be as great as at first indicated.¹¹

We have seen that the fall of the dollar in the foreign-exchange market tends directly to raise the prices of importable and exportable goods. It also exerts important direct and indirect effects upon the prices of goods that do not enter into international trade. A few of these can be noted. It is evident that domestic goods made partly or wholly of importable or exportable goods that have risen in price will themselves rise in price, as will also domestic goods that are more or less close substitutes for the international goods. The prices of domestic goods may also be raised by the inflow of gold that is likely to result from the encouragement of D's exports and the

¹¹ How much the foreign prices of goods imported and exported by D will be affected by D's devaluation depends on many factors, among which are the ratio of D's demand to the total world demand for the goods imported by D and the ratio of D's exports to the total world supply of these goods. In general, the smaller the proportion of D's imports and exports to the world total of these goods, the smaller will be the effects exerted on world prices by variations in D's demand and supply, and the greater, therefore, will be the effects of D's devaluation on the dollar prices of importable and exportable goods. This indicates that the effect of devaluation on the internal prices of goods capable of entering international trade is likely to be greater in the case of a small country than in the case of a large and economically important nation.

discouragement of its imports. It must be remembered, however, that even if an expansion of the monetary gold stock does occur, it may not be followed by a parallel expansion of the total money supply, money expenditures, and prices until after a considerable delay, if at all.

Up to this point it has been assumed that despite D's devaluation of the dollar other gold standard countries maintained their monetary units unchanged and took no other retaliatory action. But in a world composed of nations that usually guard jealously their gold reserves, prize highly their export markets, and merely tolerate imports, retaliatory action is extremely probable, particularly if D is a large and economically important nation. These retaliatory measures may be of several types. The other nations may devalue their own monetary units, perhaps even more than did D, in order to raise again the price of dollars in the foreign-exchange market and thereby shut off D's "unfair competition" in the international markets. They may also attempt to curb D's exports by imposing embargoes, quotas, licensing requirements, exchange restrictions, additional or compensatory tariffs, and various other limitations.

It is partly because of the unpredictability of foreign repercussions and partly because of uncertainty as to the behavior of the money supply and money expenditures at home that a monetary authority cannot foretell with any high degree of accuracy the effect that a devaluation of its money will exert on its country's internal price levels.

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The Income and Expenditure Approach: General Principles

THE OUTSTANDING EVENT IN THE HISTORY OF MONETARY theory since World War I and especially since the onset of the great depression in 1929 has been the rapid rise of the income and expenditure approach to the explanation of the interrelationships of money, prices, and business activity. Previously, this type of theory was largely eclipsed by other approaches to the problem, particularly the various forms of the quantity theory. But the writings of such outstanding economists as Wicksell, Keynes, Robertson, Aftalion, Schumpeter, Hawtrey, and many others have elaborated and discussed it to such an extent that it now occupies a dominant position in monetary analysis. Not only has it crowded out of the pages of learned economic journals virtually all discussion of competing approaches to the problem, but its terminology—if not its rigorous analysis—is being widely adopted by government officials, journalists, and laymen.

The great popularity of the income and expenditure approach derives not from the substance of the theory but from its logical framework. In explaining the interrelationships of money, prices, and business activity, it deals with the same factors considered by the quantity theorists—the quantity of money available, the speed with which this money is spent, and the physical volume of goods produced and sold for the flow of money expenditures. But because it is stated in terms

of such basic economic operations as producing goods, receiving an income, spending for consumption goods, saving, investing, creating and destroying money, and hoarding and dishoarding, it seems more closely related to human decisions and actions; it can be integrated with the general economic theories of value and distribution to an extent not possible with other forms of monetary theory; and it is by far the most useful approach available for analyzing the monetary aspects of business cycles.

THE ORIGIN OF THE INCOME AND EXPENDITURE APPROACH

Though the income and expenditure approach attained its dominant position in monetary theory only recently, its roots go back at least as far as the eighteenth century. During the nineteenth century it seems to have been kept alive by—perhaps it even owes a large part of its present popularity to—the heated controversy that raged around the most persistent questions in economics: “Does the capitalistic economy operating under a monetary system generate sufficient money incomes to take off the market at remunerative prices all the goods that it is capable of producing? Or is there a deficiency of purchasing power that leads to underemployment of labor, capital, and natural resources, with the result that production is not allowed to reach and continue at capacity levels? And even if the economic system does generate sufficient money incomes to purchase its capacity output at remunerative prices, do those money incomes always reappear as effective demand in the market?” A brief examination of the issues and arguments involved in this long-continuing controversy will help to explain the origin and nature of the present income and expenditure approach to monetary theory.

Opinion as to the sufficiency or deficiency of purchasing power has been divided into two main categories: that of the classical economists who, until recently at least, have dominated economic thought and have denied the existence and sometimes even the possibility of a deficiency of purchasing

power; and that of the dissenters. The dissenting group, whose members often disagree completely on other matters, have had one contention in common: that under the capitalistic system money expenditures can be so deficient as to bring about unemployment and prevent the economic system from operating at its maximum capacity. They disagree, however, regarding the frequency and seriousness of this alleged deficiency. Some of the milder dissenters point out that purchasing power can be deficient, as is shown by the occurrence of periods of recession and depression; but they admit that it can also be sufficient, as is indicated by the recurrence of prosperity. The more extreme members of the group insist that the deficiency is chronic, that there is a continued tendency toward "general overproduction," "a glut in the market," or "underconsumption." The depressing effect of this tendency is obvious to everyone in periods of cyclical depression; what is not so obvious, they contend, is that even in so-called prosperity periods the insufficiency of purchasing power prevents production from reaching the very high levels that specialization, the accumulation of capital, and the advance of technical knowledge have made possible.

The various dissenters have advanced varying explanations of this alleged tendency toward general overproduction or deficiency of aggregate demand. Some have suggested that it is traceable to the tendency in a progressive economy for total productive ability to advance more rapidly than money expenditures for output; this leads to falling prices and decreased profitability of production, and thence to unemployment. A large majority, however, have attributed the alleged deficiency of aggregate demand to the act of saving, though they differ again as to the way in which saving renders total demand deficient. Some have assumed simply that savings are hoarded, so this part of the community's income does not return to the market as effective demand. Others have advanced the more elaborate argument that the act of saving tends to bring about general overproduction because of its double-edged effect of diminishing the demand for consumption goods at the very time that it is increasing the ability of the economy to turn out these goods. But most of the dis-

senters have agreed that the deficiency of total demand due to saving was at least aggravated and was probably caused by the prevailing inequalities in the distribution of wealth and income.

In contrast to the dissenters, with their pessimistic view that there is a tendency toward a deficiency of purchasing power and that this constitutes a "fundamental flaw in the price system," the classical economists have declared optimistically that general overproduction or a "general glut of the market" is impossible. The term "general overproduction" has been used in several senses, however. It was employed by some to denote excessive production relative to the desires of people for economic goods in general. The classical economists rightly denied that general overproduction in this sense has ever existed. They often quoted with approval Adam Smith's statement, "The desire for food is limited in every man by the narrow capacity of the human stomach, but the desire of the conveniences and ornaments of building, dress, equipage, and household furniture, seems to have no limit or certain boundary."¹

That there has never yet existed an economic system capable of turning out more economic goods than people desire is unquestionably true. Yet the central question at issue here is not whether total production has ever been excessive relative to human desires for goods; it is, instead, whether total production has tended to be so large relative to the effective demand in the market that enterprisers find it unprofitable to employ fully all the available factors of production and to expand output to capacity levels. The classical economists have also denied that general overproduction in this sense could exist. They admitted readily that overproduction of a particular commodity or even a group of commodities could easily occur as conditions of supply and demand shifted, but they asserted that overproduction of some goods was balanced by underproduction of others, so that only misdirected or badly apportioned production, not general overproduction, resulted. Speaking in terms of barter, they pointed out that since labor is distasteful and will be performed only for a

¹ Quoted by David Ricardo in *Political Economy and Taxation*, chap. 31.

material reward, people produce goods only for the purpose of consuming them or of using them for the purchase of other goods; therefore, the supply of goods constitutes the demand for goods, and any increase in total supply is, when viewed from the reverse side, an equivalent increase in total demand. To assume that people would labor to produce goods that they wished neither to consume nor to trade for other goods was, in their view, patently absurd. But though their analysis was often couched in terms of barter, they held that the use of money as an intermediary in trade did not in any way weaken their argument, for trade is essentially barter, even in a money economy. Goods are sold for money, which in turn is used to purchase other goods. As J. B. Say put it,

. . . a product is no sooner created, than it, from that instant, affords a market for other products to the full extent of its own value. When the producer has put the finishing hand to his product, he is most anxious to sell it immediately, lest its value should vanish in his hands. Nor is he less anxious to dispose of the money he may get for it; for the value of money is also perishable. But the only way of getting rid of money is in the purchase of some product or other. Thus, the mere circumstance of the creation of one product immediately opens a vent for other products.²

Similar statements are easy to find in the writings of other classical economists.³

To support their contention that demand cannot be deficient, the classical theorists had to show that none of the phenomena suggested by the dissenters could lead to a deficiency. Hoarding money received for goods was often ruled out by assumption; as we have seen, Say contended that the seller of a good is anxious to dispose of the money he may get for it; for the money is also perishable. How the seller would behave if he expected money not only to maintain its value but to appreciate was not explained. Others who recognized that hoarding does sometimes occur held that this would not

² *A Treatise on Political Economy*, 4th ed., translated from the French by C. R. Prinsep, Philadelphia, 1830, chap. 15, "Of the Vent or Demand for Products."

³ For a description and criticism of the classical approach to this problem, see P. W. Martin, *The Problem of Maintaining Purchasing Power*, King, London, 1931, chap. 1.

reduce "purchasing power," for prices—and presumably costs—would fall enough to allow the entire capacity output to be purchased with the remaining money expenditures. Nor could saving lead to a deficiency of purchasing power; to save is not, they contended, to hoard money or to reduce total demand for output; to save is merely to allow part of one's income to be used in purchasing capital, rather than consumption, goods. This contention that an act of saving is always and necessarily coupled with a corresponding expenditure for new capital goods will be scrutinized later. They also denied any tendency for a deficiency of purchasing power to arise from a more rapid increase in production than in money demand. Differing lines of reasoning underlay this denial. Some maintained that whenever increased money expenditures were needed they would be forthcoming. In this vein Say wrote,

There is always money enough to conduct the circulation and mutual interchange of other values, when those values really exist. Should the increase of traffic require more money to facilitate it, the want is easily supplied, and is a strong indication of prosperity—a proof that a great abundance of values has been created, which it is wished to exchange for other values. In such cases, merchants know well enough how to find substitutes for the product serving as the medium of exchange or money . . . by bills at sight or after date, bank-notes, running-credits, write-offs, etc., as at London and Amsterdam.⁴

Others, though not sharing this optimism as to the automatic adjustment of the means of payment to the volume of production, nevertheless held that an increase in total production would not lead to a glut, because prices would be reduced sufficiently to permit all the greater quantity of goods to be taken from the market. It must be noted that this contention is valid only if costs can be lowered quickly enough and far enough to prevent any decrease in the profitability of business that would lead to unemployment.

Who is right in this controversy, the classical economists or the dissenters? Since we shall later discuss this question at length, only a few general observations need be made at this

⁴ *A Treatise on Political Economy.*

stage. No decisive victory can be awarded to either side, for serious errors have been made by both. The classical economists were undoubtedly too optimistic in denying the possibility of a deficiency of effective purchasing power; they applied an essentially long-run analysis to short-term phenomena; they failed to recognize the disturbing effects of hoarding; they assumed that saving always leads to an equivalent investment in new capital goods; and they overestimated the ease and speed with which money costs adjust themselves to a falling price level. But if they were too optimistic, the extreme dissenters, who denied that expenditures could ever be sufficient, were too pessimistic. Though the volume of money expenditures is frequently "deficient," it is also on occasion not only "adequate" but even "excessive." The classical economists, despite their errors, performed a useful service in pointing out that over a longer period of time there is a sort of central tendency for demand to be sufficient for the purchase of all the goods that the economic system is capable of supplying. If this were not true, it would not have been possible to find a market for the tremendous increase in output that has occurred since the beginning of the Industrial Revolution.

It is easy to see how the income and expenditure approach arose out of the controversy just described. To discover whether or not purchasing power could be deficient required an analysis of the nature and origin of income, the various ways in which income can be utilized and the effects of each method of its utilization, the nature of the demand for output, and the relation between the size of this demand and the size of the social income. These are the materials out of which the income and expenditure approach is constructed.

GROSS NATIONAL PRODUCT

Most of the analyses using the income and expenditure approach deal with what may be called the "net national income"—the value of the output of goods and services available for consumption or for making net additions to the na-

tion's capital supply. Our analysis will be stated in terms of a somewhat different but closely related flow of expenditures—the gross national product, popularly known as the GNP. We have chosen to state our analysis in terms of the GNP rather than net national income primarily because it is more convenient for tracing the flow of money expenditures for output. Furthermore, the GNP is widely used in economic analysis by business and government as well as by economists, and statistics on its current behavior are published widely.⁵

The Composition and Size of the GNP

Gross national product or expenditure is the market value of the output of goods and services produced by a nation's economy during a stated period of time, before the deduction of depreciation charges and other allowances for business and institutional consumption of durable capital goods. The entire output of goods and services must be counted once and only once. This would be easy to do if our entire economy were composed of one great business firm which carried out all the functions of production and marketing. We could then compute the GNP by aggregating the total market prices at which it sold its products and adding to this the net change of its inventories, valuing its change of inventories at their cost. The GNP for any period would be equal to the sales receipts of the great firm plus any net addition to, or minus any net reduction in, its inventories. But we know that there are many firms in our economy and that interfirm transactions in the producing and selling processes are of tremendous volume. For example, automobile dealers buy from distributors, who buy from manufacturers, who buy parts and materials from other firms, who buy components from still other firms, and so on. But the GNP must include automobiles only at their final sale price. This final price covers the values of all the goods and services that contribute to bringing the automobiles

⁵ See especially the *Survey of Current Business*, Published monthly by the U. S. Bureau of Foreign and Domestic Commerce, and the *Federal Reserve Bulletin*. The *National Income Supplement to the Survey of Current Business*, July, 1947, contains a description of the new concept of the GNP as well as many useful statistical tables relating to it.

to the point of final sale. The GNP therefore includes the market value of all the goods and services produced during a period, but it avoids counting any good or service more than once.

We find, then, that the GNP for any period is made up of the output of goods and services valued at their market prices. In other words, it is equal to money expenditures for the output of goods and services. These expenditures, which may also be considered as the effective money demand for current output, are of four types: (1) government purchases of new goods and services, (2) gross private domestic investment, (3) net foreign investment, and (4) personal consumption expenditures. The GNP is composed of and varies with the total of these four types of expenditures for output.

Government expenditures for goods and services can in turn be broken down into two principal classes: (1) expenditures for the products of business firms, and (2) direct expenditures for the services of productive factors, primarily for labor. We know that modern governments are great purchasers of the products of private industry. In wartime they may buy half or more of the output of business firms, and even in peacetime they buy large amounts of cement, sand, steel, motor vehicles, furniture, paper, transportation services, fuel, and a host of other articles. Business firms provide employment and produce in response to government expenditures just as they would if the demand emanated from private sources. In addition to its spendings for the output of business firms, the government spends large amounts directly for the services of productive factors, primarily labor. In performing its functions it uses manual, professional, and clerical labor in large amounts, paying out income in the form of salaries and wages. The values of these services are included in the GNP at their cost to the government.

Gross private domestic investment includes all expenditures of individuals and business firms in this country for the current output of goods and services to be used for maintaining and building up the supply of capital goods. It includes spending for replacement as well as for making net additions to the nation's supply of privately owned capital goods. Gross

private domestic investment is made up of three classes of expenditures for output: (1) new construction, both residential and non-residential; (2) producers' durable equipment, such as machinery, fixtures, railroad rolling stock, etc.; and (3) changes in the size of business inventories. It should be clear why the first two elements are included in the GNP. The third, the change in business inventories, may need some clarification. In a sense it is a balancing item; the GNP for any period is equal to final sales of goods and services plus any net increase in business inventories during the period. National output exceeds final sales of goods and services during a period by the amount of it that is used to effect a net increase in business inventories; it is less than final sales to the extent that sales represent a net depletion of business inventories. But it would be a serious mistake to consider changes in business inventories as merely a passive balancing item, for business decisions concerning inventories can have important effects on general economic conditions, especially during short periods. When business firms elect to make net additions to their inventories either by purchasing raw materials or semi-finished or finished goods from other firms or by hiring labor and other productive factors with which to produce the goods in their own plants, they make a net contribution to the GNP and to the amount of employment offered. Net increases in business inventories may thus cushion a recession or accentuate an expansion. But a net decrease in business inventories may accentuate a recession or damp an expansion, for it means that business firms are buying from other firms or producing in their own plants less than they are selling to final buyers.

Net foreign investment is the excess of foreign purchases of goods and services from us over our purchases of goods and services from other countries.⁶ It measures our net investment abroad during the year. When it is positive—when foreign purchases here exceed our purchases abroad—it is a positive contribution to the GNP. When it is negative—when we pur-

⁶ This definition is not strictly accurate but is used in order to simplify our analysis. For a more accurate description of this item, see *National Income Supplement to the Survey of Current Business*, July, 1947, p. 9.

chase abroad more than we sell abroad—it tends to reduce the GNP.

Personal consumption expenditures for goods and services should require but little explanation. They include consumer spending for the current output of durable consumers' goods, such as automobiles, refrigerators, and housefurnishings; for non-durable consumers' goods, such as food, clothing, and

TABLE 61. GROSS NATIONAL PRODUCT AND ITS COMPONENTS, 1929-1946⁷
(In billions of dollars)

Year	Total GNP	Personal Consump- tion Ex- penditures	Gross Private Domestic Invest- ment	Net Foreign Invest- ment	Govern- ment Purchases of Goods and Services	Index of the GNP, 1935-39 average = 100	Cost-of- Living Index 1935-39 = 100
1929	\$103.8	\$ 78.8	\$15.8	\$0.8	\$ 8.5	123	123
1930	90.9	70.8	10.2	0.7	9.2	108	119
1931	75.9	61.2	5.4	0.2	9.2	90	109
1932	58.3	49.2	0.9	0.2	8.1	69	98
1933	55.8	46.3	1.3	0.2	8.0	66	92
1934	64.9	51.9	2.8	0.4	9.8	77	96
1935	72.2	56.2	6.1	0	9.9	86	98
1936	84.7	62.5	10.5	-0.1	11.7	100	99
1937	90.2	67.1	11.4	0.1	11.6	107	103
1938	84.7	64.5	6.3	1.1	12.8	100	101
1939	90.4	67.5	9.0	0.9	13.1	107	99
1940	100.5	72.1	13.0	1.5	13.9	119	100
1941	125.3	82.3	17.2	1.1	24.7	148	105
1942	159.6	90.8	9.3	-0.2	59.7	189	117
1943	192.6	101.6	4.6	-2.2	88.6	228	124
1944	210.6	110.4	5.7	-2.1	96.6	250	126
1945	213.1	121.7	9.1	-0.8	83.1	252	128
1946	203.7	143.7	24.6	4.8	30.7	241	139

gasoline; and for consumer services, such as personal transportation, admission to amusement places, medical care, barber and beauty services, domestic service, and so on.

Table 61 shows the size and composition of the GNP since 1928. A close study of this table brings out several important facts. (1) As we noted earlier, the GNP is equal to and fluctuates with the total of government expenditures for goods and services, expenditures by private individuals and firms

⁷ *Ibid.*, July, 1947, p. 19, Table 2.

in this country for capital goods for both replacement and net capital accumulation, net foreign investment, and consumer expenditures for goods and services. These expenditures may be looked upon as the effective money demand for the current output of goods and services. (2) The GNP has undergone wide fluctuations since 1929. It declined about 46 per cent from 1929 to 1933, rose 80 per cent from 1933 to 1940, and then rose 103 per cent from 1940 to 1946. In 1946 the rate of money spendings for new output was 265 per cent above the depressed level of 1933 and 96 per cent above the level of 1929. (3) These wide fluctuations in the rate of spendings for output were accompanied by fluctuations in both price levels and the rate of real production. It is difficult to measure accurately the fluctuations of the average prices of all the goods and services included in the GNP, because we have no price index specifically designed for the purpose. Wholesale price indexes are too sensitive, and cost-of-living indexes are probably not sensitive enough. However, the cost-of-living index is perhaps the best index there is for the purpose. The 46 per cent decline in spendings for output from 1929 to 1933 was accompanied by a 25 per cent decline in the cost of living index, the remainder of the effects being shown in a decline of real output. Suffering under the drastic decline of the effective money demand for their output, enterprisers lowered their prices to some extent and reduced markedly the amount of production and employment. The 80 per cent rise in expenditures for output between 1933 and 1940 was accompanied by about a 9 per cent rise in the average prices of cost-of-living items. Enjoying a larger money demand for their products and being able to draw on a large reserve of unemployed men and other productive factors, enterprisers increased employment and real output much more than their prices. Even the 103 per cent increase in spending for output from 1940 to 1946 was accompanied by only a 39 per cent increase in the cost of living. A comparison of the very high level of spending in 1946 with the depressed level of 1933 is instructive. The 265 per cent increase in the rate of expenditures for output was accompanied by only a 51 per cent rise in the cost of living, by far the larger part of the increase in spendings being reflected in increases

of employment and real output. Virtually everyone was amazed at the productivity of the economic system under conditions of high effective demand. (4) Of all the components of the GNP, gross private domestic investment shows by far the greatest percentage fluctuations in peacetime. This wide variability of private spendings for capital goods will be discussed at length in a later section.

THE GNP AND GROSS NATIONAL INCOME

The GNP may also be called the gross national income. Accustomed as we are to thinking of income as receipts of money, it may at first be difficult to see why the GNP—the market value of output—should be considered income. But on reflection it should be clear that all the money expenditures for output during a period accrue to someone as gross income. Every dollar spent for output is received by someone. Some of the receipts for output are transferred to the government as taxes and other similar revenue; they are the income of the government. Business firms retain part of their gross income from output for their depreciation allowances and for undistributed profits. The remainder of the spending for output becomes incomes for the other members of the community—wages and other compensation to labor, interest on debt, rent on real estate, and dividends and other distributed profits to the owners of business. Thus, the gross money income of the nation for any period—the sum of the distributive shares of the gross national income—is equal to the GNP, and it fluctuates from period to period with the size of the GNP. This is of the greatest importance; it emphasizes the fact that the money income of the nation is created by expenditures for output, and that the size of the national money income fluctuates with the rate of these expenditures.

In analyzing the gross national income in the sense of the sum of its distributive shares, we shall find it convenient to break it down into: (1) the disposable income of the government, (2) the disposable income of business firms, and (3) the disposable incomes of persons. The sum of these for any

period is equal to the GNP. By the disposable income of any one of these three groups we mean the amount of income remaining for consumption or saving after certain transfers have taken place. By "consumption" we mean expenditures for consumers' goods and services. By "saving" we mean a failure to spend a part of the disposable income for consumption; saving is equal to disposable income minus consumption. Thus all the disposable income is disposed of as either consumption or saving.

We are all acutely aware of the fact that the government secures a large amount of income from taxes and other similar levies such as fees and fines. Some of these revenues, such as sales taxes, license fees, property taxes on business assets, corporation income and excess profits taxes, and capital stock taxes, are collected from business firms. Others are collected from individuals. But the government's disposable income in any period is not equal to its revenues. It transfers some of its revenues to other members of the community without receiving currently any goods and services in return. Some of its income is transferred to individuals and business firms as interest on the government debt. Some of its income is transferred to business firms as net subsidies. Another portion is transferred to individuals as pensions, social security benefits, and a few other similar payments. All these transfers from the government become part of the disposable incomes of the other members of the community. The government's disposable income for any period is equal to its revenues less its transfers to others of net interest payments, net subsidies, and payments in such forms as pensions and social security benefits.

The government disposes of its disposable income in two ways—as spendings for newly produced goods and services, and as savings. Some of the things it purchases are used for purposes comparable to private consumption; among these are food and clothing for the armed forces, and the services used for the ordinary day-to-day functions of government. Other expenditures are clearly for things of a capital nature; among these are its expenditures for new construction and hydroelectric projects. But many of its expenditures are al-

most impossible to classify as between consumption and investment. For this reason and also because it will facilitate the exposition, we shall call all government expenditures for new goods and services out of its disposable income "government consumption," and any part of its disposable income not spent for government consumption we shall call "government savings." Thus, when the government's disposable income exceeds its consumption, government savings equal the government's disposable income minus its consumption. But we know that in some periods the government's spending for goods and services amounts to more, sometimes far more, than its disposable income, and that it borrows the difference. The excess of government expenditures for output over its disposable income we shall call "government investment." Thus, when the government spends for output more than its disposable income, its savings are zero and its investment is equal to its spendings for output minus its disposable income. We shall see later that government investment is an outlet for savings; the government can borrow some of the savings of the nation and by investment return them to the market as demand for output.

The disposable income of business firms is equal to the sum of their depreciation allowances and their savings from their net incomes. They retain control over part of their receipts from output to cover allowances for current depreciation of their capital. This amount tends to remain relatively constant from one year to the next. Business savings out of net income vary widely. In prosperous times they are likely to be large, for at such times business firms retain a considerable part of their net earnings as undistributed profits. In periods of depression, however, they often pay out considerably more than their net profits; their net savings are negative. We shall apply the term "gross business savings" to the algebraic sum of business allowances for depreciation and net business savings. Thus, all the disposable income of business firms during a period is a part of gross national savings; it represents disposable income that does not return to the market as consumption.

Personal disposable income is all the income received by

individuals and remaining at their disposal after they have met their tax obligations. People dispose of their disposable income in two ways. Part of it they spend for consumers' goods and services; we shall call this personal or individual consumption. The remainder is personal savings. Thus, personal savings for a period equals personal disposable income minus personal consumption.

TABLE 62. NATIONAL DISPOSABLE INCOME AND ITS DISTRIBUTIVE SHARES, 1929-1946^a
(In billions of dollars)

Year	Total Disposable Gross National Income	Disposable Income of the Government	Disposable Income of Business	Personal Disposable Income
1929	\$103.8	\$ 9.5	\$11.8	\$ 82.5
1930	90.9	8.9	8.3	73.7
1931	75.9	6.4	6.6	63.0
1932	58.3	6.4	4.2	47.8
1933	55.8	6.7	3.9	45.2
1934	64.9	7.4	5.8	51.6
1935	72.2	8.1	6.1	58.0
1936	84.7	8.9	7.5	68.3
1937	90.2	12.2	7.9	65.5
1938	84.7	11.2	7.9	65.5
1939	90.4	11.2	9.1	70.2
1940	100.5	13.4	11.3	75.7
1941	125.3	21.2	12.1	92.0
1942	159.6	28.5	14.8	116.2
1943	192.6	44.4	16.5	131.6
1944	210.6	45.4	19.1	146.0
1945	213.1	43.5	18.9	150.7
1946	203.7	34.1	11.1	158.4

Table 62 shows the national disposable income and its distributive shares for the years following 1928. These figures indicate clearly that (1) the disposable gross national income for any year is equal to the GNP for that year, and (2) the disposable gross national income for any year is equal to the sum of the disposable income of government, the disposable income of business, and personal disposable income.

^a Computed from various tables in *ibid.*, July, 1947.

THE DISPOSAL OF INCOME

In the preceding sections we have emphasized the fact that the size of the gross national income, whether expressed as the market value of output or as the sum of the shares of disposable income, depends on and is equal to expenditures for output. But it should be clear that the flow of spending is not entirely in one direction; it is circular. Starting with the spendings for output, these spendings accrue to the government and the other members of the community as money income; the money income received is available for spending for output, and so on. The GNP will continue at a stable level as long as the circular flow of expenditures continues at a constant rate, as long as the recipients of its distributive shares, considered as a group, spend as much for output as they receive. Suppose, for example, that at a certain time spendings for output are at the rate of \$100 billion a year. The GNP will remain at that level as long as the recipients of income spend at that rate for output. It will decline if they fail to spend for output as much as they have received, and it will rise if they spend for output more than they have received.

But how can the shares of gross income received by the government and the other members of the community return to the market as expenditures for output? We have already seen that part of the disposable income is returned to the market as consumption spendings for output. These consumption spendings are equal to the sum of personal consumption and government consumption expenditures out of the disposable income. The remainder of the gross national income is saved. Thus we can express gross national savings in two ways: (1) Gross national savings equals gross national income minus consumption, or (2) gross national savings equals personal savings plus gross business savings plus government savings. Both of these methods of defining savings indicate clearly that savings are the part of the gross national income that is not returned to the market as consumption expendi-

tures for output; saving is the purely negative act of not spending for consumption.

How can savings return to the market as expenditures for output? Only through investment. Investment spendings are made up of three parts: (1) gross private domestic investment, (2) net foreign investment, and (3) government investment—i.e., government spendings for output in excess of its disposable income. These are the only “offsets to savings,” the only ways that savings can be channeled back into the market as spendings for output. We saw in Chapter 21 that savers may themselves use part of their savings for current investment. Thus an individual may simultaneously save and spend his savings for improvements to his house; and a business firm may save by setting aside depreciation allowances, retaining net profits, and simultaneously spending for new capital goods for replacement or net capital accumulation. But a decision to save on the part of a person or business firm is not necessarily a decision to spend an equal amount currently as investment. Most saving is done by people who do not spend their current savings for investment. These funds can become investment only by being transferred directly or indirectly to others in exchange for shares of ownership or evidences of debt, and then spent by the transferees as investment. The saving-investment relationship is indeed crucial.

Let us now analyze the disposal of the gross national income, the distribution of disposable incomes as between consumption and savings. Table 63 shows the disposal of disposable personal income since 1928. It indicates clearly that people's consumption varies with their disposable income, being high when this income is high and low when it is low. But their consumption is less variable than their disposable income. When this income falls they reduce their consumption, but not correspondingly; they save less, not only in absolute amount but also as a proportion of their disposable income. For example, in 1929 when disposable personal incomes amounted to \$82,500 million, people spent 95.5 per cent of this amount for consumption and used 4.5 per cent as savings. But in 1933, when their disposable incomes had dropped to

very low levels, they spent for consumption an amount equal to 102.4 per cent of their disposable incomes; their savings were negative. As their disposable incomes rise, people increase their consumption, but not proportionally; they save a larger part of their incomes. For example, in 1941 when their disposable incomes had risen to \$92 billion, people spent

TABLE 63. THE DISPOSAL OF DISPOSABLE PERSONAL INCOME, 1929-1946^a

Year	Disposable Personal Income (In billions of dollars)	Personal Consumption (In billions of dollars)	Personal Consumption as a Per- centage of Personal Disposable Income	Personal Savings (In billions of dollars)	Personal Savings as a Percentage of Personal Disposable Income
1929	\$ 82.5	\$ 78.8	95.5%	\$ 3.7	4.5%
1930	73.7	70.8	96.0	2.9	4.0
1931	63.0	61.2	97.1	1.8	2.9
1932	47.8	49.2	102.9	-1.4	-2.9
1933	45.2	46.3	102.4	-1.2	-2.4
1934	51.6	51.9	100.6	-0.2	-0.6
1935	58.0	56.2	96.9	1.8	3.1
1936	68.3	62.5	91.5	5.8	8.5
1937	71.1	67.1	94.4	3.9	5.6
1938	65.5	64.5	98.5	1.0	1.5
1939	70.2	67.5	96.2	2.7	3.8
1940	75.7	72.0	95.1	3.7	4.9
1941	92.0	82.3	89.5	9.7	10.5
1942	116.2	90.8	78.1	25.4	21.9
1943	131.6	101.6	77.2	30.1	22.8
1944	146.0	110.4	75.6	35.6	24.4
1945	150.7	121.7	80.8	29.0	19.2
1946	158.4	143.7	90.7	14.8	9.3

89.5 per cent of them for consumption and saved 10.5 per cent. Personal savings were abnormally high during the war, even in relation to the unusually high level of income. This was due to a combination of conditions, including a scarcity of many desirable types of consumers' goods, rationing, price control, and fervent pleas to save as much as possible in order to combat inflation and finance the war. There can be little doubt, however, that with high levels of income our people

^a *Ibid.*, July, 1947, Table 3, p. 19.

tend to use a smaller part for consumption and a larger part for savings.

Gross business savings also vary with the level of the gross national income, as is shown in Table 62. They fell from \$11,800 million out of the high national income of 1929 to only \$3,900 million in 1933, and then rose with the national income to \$11,300 million in 1940 and to even higher levels during the war. This variability of gross business savings is largely traceable to changes in business savings out of net income. Depreciation and other similar allowances remain relatively constant, but business firms tend to retain large amounts of undistributed profits in good years and to pay out more than their net profits in bad years.

Let us now look at gross private savings—the sum of personal savings and gross business savings—out of the combined disposable incomes of businesses and individuals. Table 64 shows that the higher their disposable income the larger is the percentage of their income that they save. The private sector of the economy saved 16.4 per cent of its disposable income in 1929, but only 5.5 per cent of its low disposable income in 1933. Then as its disposable income rose it saved larger portions of it. This is a highly important fact that we must remember for our later analysis—the higher their disposable incomes, the more people and business firms save, not only in absolute amounts but as a percentage of their disposable incomes. This is certainly true during business cycles, though it may not be over a long-term secular trend.

We need not dwell long on government saving. In only three years during the 1929–46 period did the government do any saving. In all the others its expenditures for goods and services exceeded its disposable income. These excesses of expenditure over disposable income were government investment.

Let us now return to our analysis of the relationship between gross savings and gross investment. We found that savings can return to the market as demand for output only through investment. Table 65 shows gross savings and gross investment in the United States since 1928. In view of our repeated statements concerning the crucial nature of the

savings-investment relationship and the serious economic consequences of maladjustments in this relationship, one fact brought out in this table may be something of a shock. *In every single year savings equals investment.* In 1929 both savings and investment were \$16,600 million. In 1933 they were equal at \$2,700 million. In 1946 they were equal at \$29,400 million.

TABLE 64. THE DISPOSAL OF BUSINESS AND PERSONAL DISPOSABLE INCOMES, 1929-1946¹⁰
(In billions of dollars)

Year	Total Disposable Income of Business and Persons	Total Savings of Persons and Business	Personal and Business Savings as a Percentage of Their Disposable Incomes	Personal Consumption	Personal Consumption as a Percentage of Personal and Business Disposable Incomes
1929	\$ 94.3	\$15.5	16.4%	\$ 78.8	83.6%
1930	82.0	11.2	13.7	70.8	86.3
1931	69.6	8.4	12.1	61.2	87.9
1932	52.0	2.8	5.4	49.2	94.6
1933	49.1	2.7	5.5	46.3	94.5
1934	57.4	5.6	9.8	51.9	90.2
1935	64.1	7.9	12.3	56.2	87.7
1936	75.8	13.3	17.5	62.5	82.5
1937	78.0	10.9	14.0	67.1	86.0
1938	73.4	8.9	12.1	64.5	87.9
1939	79.3	11.8	14.9	67.5	85.1
1940	87.0	15.0	17.2	72.0	82.8
1941	104.1	21.8	20.9	82.3	79.1
1942	131.0	40.2	30.7	90.8	69.3
1943	148.1	46.6	31.5	101.6	68.5
1944	165.1	54.7	33.1	110.4	66.9
1945	169.6	47.9	28.2	121.7	71.8
1946	169.5	25.9	15.3	143.7	84.7

A study of the other years bears out the fact that in each year, and even in shorter periods, savings equals investment.

Does not this observed equality of savings and investment belie our earlier contention that they can get out of appropriate relationship to each other? It does not. The year 1929 was one of high employment, high national income, and

¹⁰ Computed from various tables in *ibid.*, July, 1947.

relatively stable prices for output. Why did not this condition continue? It could have if all the gross national income had continued to return to the market as a constant flow of spendings for consumption and investment—if all the savings *out of the 1929 income levels* had returned to the market as investment. But we know that the total of consumption and invest-

TABLE 65. GROSS SAVINGS AND GROSS INVESTMENT IN THE UNITED STATES, 1929-1946¹¹
(In billions of dollars)

Year	Gross Savings				Gross Investment			
	Personal Saving	Gross Business Saving	Gov-ern-ment Saving	Total Gross Savings	Gross Private Domestic Investment	Net Foreign Investment	Government Investment	Total Gross Investment
1929	\$ 3.7	\$11.8	\$1.1	\$16.6	\$15.8	\$0.8	\$0.0	\$16.6
1930	2.9	8.3	0	11.2	10.2	0.7	0.3	11.2
1931	1.8	6.6	0	8.4	5.3	0.2	2.8	8.4
1932	-1.4	4.2	0	2.8	0.9	0.2	1.7	2.8
1933	-1.2	3.9	0	2.7	1.3	0.2	1.3	2.7
1934	-0.2	5.8	0	5.6	2.8	0.4	2.4	5.6
1935	1.8	6.1	0	7.9	6.1	-0.1	1.8	7.9
1936	5.8	7.5	0	13.3	10.6	-0.1	2.8	13.3
1937	3.9	6.9	0.6	11.4	11.4	0.1	0.0	11.4
1938	1.0	7.9	0	8.9	6.3	1.1	1.6	8.9
1939	2.7	9.1	0	11.8	9.0	0.9	1.9	11.8
1940	3.7	11.3	0	15.0	13.0	1.5	0.5	15.0
1941	9.7	12.1	0	21.8	17.2	1.1	3.5	21.8
1942	25.4	14.8	0	40.2	9.3	-0.2	31.2	40.2
1943	30.1	16.5	0	46.6	4.6	-2.2	44.2	46.6
1944	35.6	19.1	0	54.7	5.7	-2.1	51.2	54.7
1945	29.0	18.9	0	47.9	9.0	-0.8	39.6	47.9
1946	14.8	11.1	3.5	29.4	24.6	4.8	0.0	29.4

ment expenditures began to decline in 1929 and reduced the gross national income to ruinously low levels in the 1932-33 period. How could this decline of expenditures for output occur? Because the government and the private sectors of the economy became unwilling to spend for investment as much as the nation elected to save *out of the 1929 levels of income*. Thus, the national money income could not remain at the

¹¹ Computed from tables in *ibid.*, July, 1947.

1929 levels because at those levels the nation would save more than the amount that could find an outlet as investment. Saving and investment could be equalized only by a decline in the gross national income sufficient to lower the rate of actual savings to the level of current investment. It is to be noted that the equalization of savings and investment occurred through a reduction of the gross national income. This brings out an important general principle: The nation cannot save more than the amount of current investment. *Any attempt by the nation to save more out of a given level of income than is being spent as investment must lower the gross national income to the point at which the nation's savings will not be in excess of current investment.* Such a decline in the gross national income is usually initiated by a decline in investment.

On the other hand, we know that the gross national income rose markedly from the low 1933 levels. How could such a rise in consumption and investment spending occur? Because investment spending came to exceed the amount of savings that the nation would make *out of its 1933 level of income.* Saving and investment could be equalized only by a rise in the gross national income to the level at which actual savings would equal current investment. Here again we must note that the adjustment was effected through a change in the level of money income, in this case by a rise in the money income sufficient to raise the actual rate of savings to the rate of current investment.

We are thus brought to an important conclusion. The gross national income at any time is at the level that equalizes savings and investment. It is not at a higher level because at higher levels of income the nation's savings would exceed current investment. And it is not at a lower level because at lower levels the nation's savings would be less than investment. The level of the gross national income at any time therefore depends on the relationship between the amounts that the nation would save out of various levels of the gross national income and the amounts that can find outlets as investment. With an appropriate relationship between the propensity to save and the willingness of the government and private sectors of the economy to spend for investment,

savings and investment may be equalized with gross national income at a level which will provide full or near-full employment and relatively stable prices for output. At another time investment may be at such a low level relative to the propensity to save that savings and investment are equalized only if the gross national money income is at such low levels that widespread unemployment is inevitable. At still another time investment may be at such a high rate relative to the propensity to save that savings and investment are equalized only at such high levels of gross national money income as to produce inflation. These are hardly the adjustments of savings and investment that the classical economists had in mind.

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Fluctuations of the National Money Income

IN THE PRECEDING CHAPTER WE FOUND THAT FOR ANY PERIOD the GNP, or gross national product, is equal to the sum of consumption plus investment expenditures for output. The gross national income fluctuates with the rate of this spending. The purpose of this chapter is to analyze further the processes that bring about these fluctuations. We could, of course, analyze them in terms of the income type of quantity theory, showing that spendings for output vary with the quantity of money (M) and the income velocity of money (X). This type of analysis is useful, and we shall refer to it on occasion. Here, however, we shall analyze the fluctuations of money income in terms of the processes of consumption, saving, and investment.

Before beginning this analysis we must note carefully our definitions of terms. We shall use the term "money income" or "national money income" in the gross sense; it is the same as the GNP. Expenditures for output are of two general types: (1) consumption, and (2) investment. Consumption is the total of consumer expenditures for output during the period, plus government expenditures for output out of its disposable income. Investment during a period is the sum of spendings by individuals and business firms as "gross private domestic capital formation," plus net foreign investment, plus government expenditures for goods and services in excess

of its disposable income for the period. The nation's total money income for any period is equal to the sum of these consumption and investment spendings. The money income thus placed at the disposal of the government, corporations, and individuals is disposed of in two ways. One part is spent for consumption; this term has already been defined. The remainder is "saved"; it becomes savings. Saving during a period is equal to national money income minus consumption. It is also equal to the sum of individual saving, business gross saving, and government saving out of its disposable income.

THE BEHAVIOR OF MONEY INCOME

The flow of expenditures into the market for output, then into the distributive shares of income, and back into the market for output is, of course, a continuous circuit flow. But in order to examine microscopically or—what is perhaps a better analogy—to photograph in slow motion the processes of creating and disposing of money income, time will be divided into "periods." *A period, in the special sense in which it is used here, is of such length that though one can receive an income in it he cannot dispose of that income—that is, he cannot spend it for consumption or "save" it—until the following period.* Thus, income created and received in period 0 cannot be spent for consumption or saved until period 1; income created and received in period 1 cannot be spent for consumption or saved until period 2; and so on.¹ Suppose, for example, that in period 0 consumption is \$80 and investment \$20. The money income of period 0 will be the sum of consumption and investment, or \$100. But period 0 is of such length that the recipients of this income cannot dispose of it—cannot spend it for consumption or save it—until period 1.

This slow-motion photograph will be used on three types

¹ This expositional device is taken from D. H. Robertson, "Saving and Hoarding," *Economic Journal*, September, 1933, pp. 399–413. What is here called a "period" is similar to Robertson's "day." This division into distinct periods of what is essentially a continuous process may seem to make the analysis unrealistic. However, it is the most fruitful method yet developed for analyzing the process of change in money incomes, and it distorts the picture only little.

of cases: (1) that in which money income remains constant from period to period, (2) that in which money income shrinks from period to period, and (3) that in which money income expands from period to period. In each case we shall assume that the money income of period 0 is \$100. It will also be convenient, though not necessary for the validity of the explanation, to assume that we start with the situation in which the economic system is operating at or near capacity levels, and in which costs of production, money expenditures, and profits are so adjusted as to justify, from the enterprisers' point of view, the continuance of business activity at the existing level.

Stable Money Income

Money incomes can remain stable from period to period if there is no net change in the money supply and no net hoarding or dishoarding, or if changes in the money supply and in hoarding or dishoarding are such as to offset each other. This amounts to saying, as will be shown, that money income will remain stable as long as investment in one period is equal to savings out of the income of the preceding period. This fact is shown in Fig. 19.

When the \$100 money income of period 0 becomes available for disposal in period 1 it is utilized in two ways. Part of it, usually a large part, is spent for consumption. Let us assume that \$80 is spent for this purpose. The other part, in this case \$20, is saved. These savings can be returned to the market as expenditures for output in period 1 only by being spent as investment by the government or the private sectors of the economy. If investment in period 1 does amount to \$20, the amount of savings out of the money income of the preceding period, expenditures for output (national money income) in period 1 will be \$100—the same as in period 0.

The general conclusion indicated by this example is that money income can remain constant from period to period only if investment in each period is exactly equal to savings out of the money income of the preceding period. This requires that there be no net hoarding and no net decrease in the money

supply, or that if hoarding or dishoarding and changes in the money supply do occur, they be such as to offset each other.

As long as the above conditions are met, the flow of money income will remain at the rate of \$100 per period. If the output of consumption and investment goods is at the rate of 100 units in period 1, the average price per unit will be \$1, and it will continue at that level if output is constant. This price is high enough to cover costs of production, if they remain

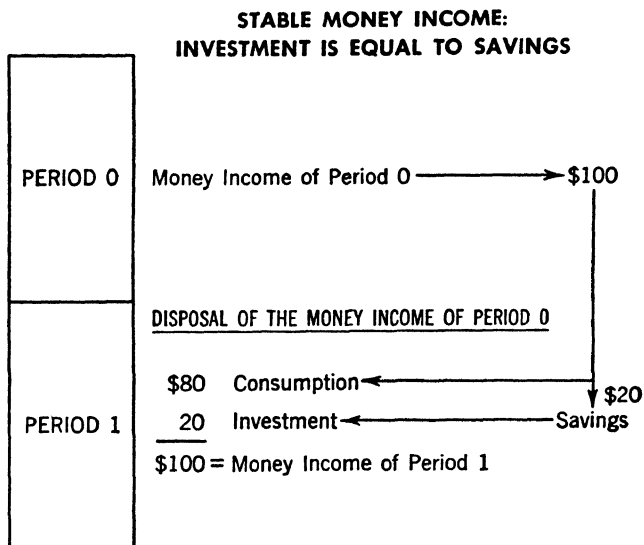


FIG. 19.

properly adjusted, and still leave enterprisers sufficient profit to justify the maintenance of high-level production. But if physical output rises above 100 units per period and the rate of expenditure for output remains unchanged, the average price per unit of output must fall. Whether or not such a price decline will cause enterprisers to fail to employ all the available factors of production depends upon whether or not costs of production adjust themselves in such a way as to preserve the enterprisers' prospective profits. If the enhanced productive power emanates solely from new inventions and improved methods of organization and administration which

increase the average output per unit of labor and capital, no difficulty is necessarily presented; if hourly rates paid to the factors of production are not raised, the greater quantity of output can be produced at the same aggregate cost as before, so the volume of enterprisers' profits need not fall despite the decrease in the average sale price per unit. The decline in the price per unit is offset by the reduced cost per unit. If, however, the increase in the productive power of the economy is traceable not to the greater average productivity of productive factors but rather to an increase in the supply of these factors, full employment can be maintained only by (1) a sufficient downward adjustment of the rates paid to production factors to lower costs per unit and preserve enterprisers' profits, or (2) a sufficient expansion of money expenditures, by methods to be described later, to offset the increase in aggregate costs, or (3) a combination of the two. In an economy in which the rates paid to production factors adjust downward only slowly, adjustment can probably be made with less friction by means of (2). The general conclusion must be, then, that economic equilibrium at full employment can be attained with money expenditures for output continuing at a fixed level if the volume of output is constant or increases only as a result of greater productivity of the existing factors of production. But in an economy in which downward adjustments of rates of pay are effected only with great difficulty it is probably desirable to increase the money demand for output in order to absorb into the economic process larger supplies of labor and capital.

The Contraction of Money Income

Money income will shrink from period to period as long as investment in each period is less than savings out of the income of the preceding period. Investment may fall below savings either because of a net reduction of the money supply or because of hoarding. Savings are hoarded if they are held in money balances for such a time as to prevent them from flowing back into money incomes in the period in which they are saved. In effect, hoarding is the same as a reduction of the

circuit velocity of money. The way in which investment is depressed below savings through the destroying and hoarding of money is best explained by the type of analysis used in the preceding case. We again break into the economic process in period 0, in which money income is \$100.

When the \$100 money income of period 0 becomes available for disposal in period 1, part of it—again let us suppose \$80—is spent for consumption. The remainder, \$20, is saved. Though all the savings may be invested by the government or by the private sectors of the economy, as was shown in the preceding case, it is clear that this need not occur, for there are other ways in which they may be used. Part may be used to reduce the money supply, thereby disappearing from the economic system. This is done most frequently through the commercial banks. Savers themselves—the government, business firms, or individuals—may use part of their savings to repay bank loans, and the banks, by permitting the total volume of their credit to fall, allow the money savings to vanish into thin air. The same results are achieved if enterprises or governmental units borrow the savings of the community and use them to reduce bank loans, or if savers and persons or institutions to whom savings are transferred use them to purchase from the banks securities or other assets which the banks do not replace. Savings may also disappear from a national economy by being used to finance a net export of money to other countries or, in infrequent cases, being used by the government to retire its money issues.

Savings may also be bottled up and prevented from entering investment by net hoarding, either by savers themselves or by others. A saver may add some of his current savings to his idle money balances in the form of cash or checking deposits and hold them until a later period. He may use part of his savings to repay borrowings from persons or institutions other than commercial banks, who, in turn, hold the money instead of spending it for consumption or permitting it to be invested. He may use some to purchase old securities or other old investment assets from sellers who hoard the savings that are transferred to them. He may entrust them to financial institutions other than commercial banks, which hoard the

funds to increase their liquidity. And even if his savings do find their way into the hands of commercial and industrial enterprises through the setting aside of depreciation and obsolescence allowances, the retention of profits, or the sale of securities to the community, they may still be employed not for investment expenditures, but for the swelling of idle money balances.

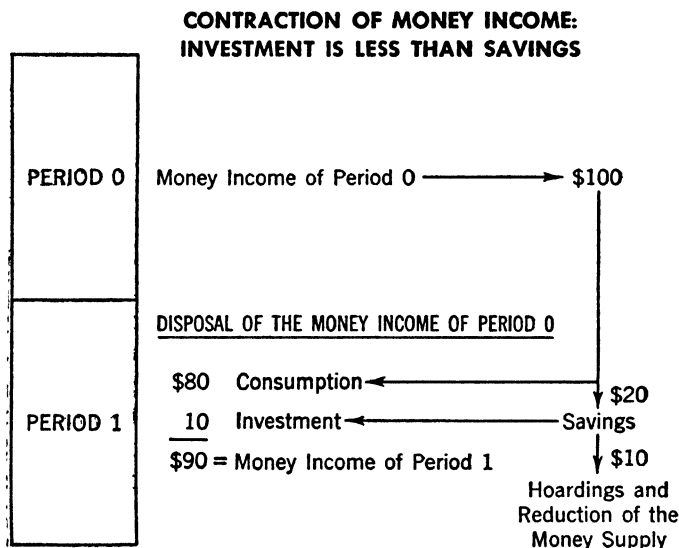


FIG. 20.

Spending for output and the national money income in any period will fall below the money income of the preceding period by a net amount equal to the excess of savings over investment. For example, suppose that out of the \$100 money income of period 0 expenditures for consumption are \$80, the other \$20 being saved. But total investment by the government and the private sectors of the economy may be only \$10, the other \$10 of savings out of the money income of period 0 being added to idle money balances or used to reduce the money supply. The money income of period 1, being composed of the \$80 spent for consumption and the \$10 spent for investment, will fall to only \$90, the \$10 decline measuring

the excess of savings out of the income of period 0 over investment in period 1. Thus, the attempt of some parts of the community to save more than the government and the private sectors of the economy will spend as investment can only lower the money income of the nation as a whole and reduce its ability to consume and save. It should be clear that if we carried our analysis to period 2 when the community had for disposal only the \$90 money income of period 1, we would find that both consumption and savings would decline. Such a decline of money income, once started, must continue until the community no longer attempts to save more than can find investment outlets.

The general principle illustrated by this case is that money income will decline from period to period as long as savings exceed investment. Such declines cannot fail to be disastrous in a capitalistic economy in which enterprisers undertake the production of goods and services only for the purpose of selling them in the market at a profit. The real or physical output usually declines less than the money value of output, because to some degree enterprisers lower prices and maintain production. But in an economy in which many costs can be lowered only slowly and with difficulty and in which some enterprisers refuse to reduce prices significantly regardless of decreases in costs, a large part of the shrinkage in the money demand is manifested in reduced employment, shrunk production, and diminished real income. It was this thoroughly unreasonable situation that the dissenters had in mind and that the classical economists largely neglected. Although people earnestly desire the necessities and conveniences of life, and many suffer painfully for lack of them, productive facilities capable of satisfying these needs lie idle solely because of inadequate "demand." Thus, saving—the mere failure to spend for consumption—does not necessarily and automatically augment the capital supply and increase the productivity of the economic system. When it fails to materialize in investment, it serves instead to depress business activity and to lead to unemployment of productive facilities rather than to their employment in the creation of capital goods, and often to an actual deterioration of physical capital.

And the depression is not limited to the capital goods industries; it usually spreads to the consumption goods industries as the original decline in the money income decreases the nation's ability to spend for consumption. This contrast between the economics of the system as a whole and the economics of the individual enterprise is most striking in the case of depreciation and obsolescence allowances. In the opinion of an individual enterpriser, he is keeping his "capital" intact as surely by hoarding money representing estimated depreciation and obsolescence or by using it to retire bank loans as he would be by repairing or replacing equipment. But from the social point of view, "capital" is not being conserved; hoarding or destroying money does not paint buildings, or repair worn machinery, or replace obsolete equipment. Paradoxical as it may seem, the quickest way for an entire people to impoverish itself is to refuse to spend its money. Saving can be both "a private virtue and a public good" only if it is accompanied by investment.

The Expansion of Money Income

Money income can expand from period to period for a reason just the reverse of that leading to a shrinkage—an excess of investment in any period over savings out of the income of the preceding period. Investment can exceed savings either because of a net increase in the money supply or because of dishoarding. Dishoarding is the opposite of hoarding. It occurs when members of the community, including enterprisers, draw from their money balances held at the beginning of the period for consumption and investment an amount greater than their money income in the preceding period. In effect, dishoarding is the same as an increase in the circuit velocity of money. The process of expansion is best explained by the type of analysis used in the two preceding cases.

When the \$100 money income of period 0 becomes available for disposal in period 1, a part of it—again let us suppose \$80—is spent for consumption, and the remainder is saved. But though only \$20 is saved, investment spending by the government and private sectors of the economy may be \$30,

so that money expenditures for output and the money income of period 1 are \$110, a \$10 rise from the level of the preceding period. The rise of money income from one period to the next is equal to the excess of investment in period 1 over savings out of the income of period 0. But how can investment in a period exceed savings out of the income of the preceding period? What is the source of the money used for the extra spending? The excess of investment over savings is equal to

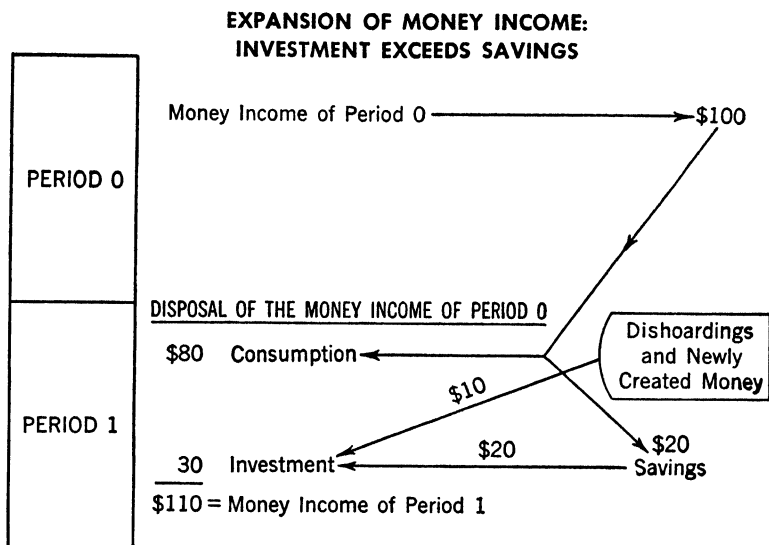


FIG. 21.

the sum of the net increase of the money supply and the net dishoardings. The money supply may be increased in various ways, as we have seen. New gold or silver money may be created or new bank deposits created and given in exchange for these metals, and the new money spent for output. The government may create new paper money and spend it for output. But the most important source of new money is the expansion of credit by the banking system. Banks may increase their loans to individuals or business firms and the newly created checking deposits be spent for output. The banks may purchase securities from the private sectors of the

economy, giving new checking deposits in payment, and these newly created deposits may be spent directly or indirectly for output. Or the banks may lend to the government, and the newly created deposits may be spent by it to swell the national money income. Huge amounts were injected into the stream of spending during World War II as the banks bought large amounts of securities from the government and the government spent the newly created deposits for goods and services that it needed to prosecute the war. These expenditures swelled the nation's money income.

The excess of investment over savings may also be brought about by dishoarding. The government may decrease its money balances to spend for output or to make money available to others for spending. Individuals may spend their money balances for consumption or investment, or to make some of their money available to others for spending. Financial institutions, such as investment trusts, insurance companies, and savings banks, may also dishoard as they come to feel that prices of securities are not likely to fall but may rise, so that it is wise business policy to hold a larger proportion of earning assets and a smaller proportion of sterile money. Industrial and commercial enterprises may sacrifice liquidity in order to buy finished investment goods. Dishoarding, especially by financial institutions, industrial and commercial enterprises, and wealthy persons, is a rich source of additional spending at the end of long and serious depressions in which hoarding has been widespread. It is to be noted again that dishoarding does not increase the nation's total money supply; it merely increases its income velocity. In fact, dishoarding may be defined as an increase in the income velocity of money.

But whether it is brought about by a net increase of the money supply or net dishoardings, or both, an excess of investment in one period over savings out of the income of the preceding period will raise the level of the national money income by an equivalent amount. And this rise of money income from period to period will continue as long as investment in one period exceeds savings out of the money income of the preceding period.

It should be noted that the above discussion relates to the

behavior of money income. How will real income or output behave under these conditions? As a reaction against the old mercantilist emphasis upon the importance of money and the desirability of increasing the national money supply, economists have long emphasized the fact that national wealth consists, not of money, but of real goods; and that the national standard of living depends, not upon the size of the money flow, but upon the volume of real goods and services turned out each year by the economic system. And, as a corollary to this, they have maintained that advancement of national economic standards can be attained only through greater productivity of the economic system; it is not to be achieved through mere multiplication of money. These contentions contain substantial elements of truth, and their authors have rendered valuable service in exposing the fallacies of many get-rich-quick inflation schemes. When the economy is already operating at as near capacity levels as it can and when virtually all labor and other available productive facilities are employed, even a very large expansion of spendings—whether traceable to dishoarding or to an increase in the money supply—cannot enlarge real output significantly; it will merely lead to higher prices. At such times sizable increases in real output can be achieved only by an increase in the supply of labor, capital, or natural resources, by technological advances, or by improved methods of organization and administration. Increased expenditures can hardly be expected to achieve these ends. The American economy was in this position in 1946 and 1947. Expenditures for output were already at such high levels that enterprisers were employing virtually all the available productive factors and could expand their real output only with great difficulty. A further increase in the rate of spending would merely intensify the inflationary pressure on price levels. In fact, the rate was already so high that prices were rising rapidly. Full or near-full employment could probably have been maintained with a lower rate of consumption and investment spendings.

It does not follow, however, that an expansion of the money flow can never enlarge the real output or increase the real wealth of a nation. If expenditures for consumption and in-

vestment are increased at a time of considerable unemployment, the result is almost certain to be an increase in employment and an expansion of the real income of the nation. At such times the most pressing economic problem is not to increase the supply of labor, capital, land, technical knowledge, and managerial ability available for use, but rather to utilize more fully the productive facilities that are already available. Increased expenditures for output—that is, an increase in the effective money demand for goods and services—are capable of accomplishing this. It must be emphasized that the increased demand need not be confined to the capital goods industries even if it originates in a higher rate of investment by the government or the private sectors of the economy. The original increase in the national money income is likely to induce higher expenditures for consumption, which increase money incomes still further, which increase consumption still more.

THE MULTIPLIER AND THE MULTIPLIER EFFECT

In the preceding sections we discussed the processes by which the national money income can change from one period to the next. We found that money income in a given period will exceed the money income of the preceding period by an amount equal to the excess of investment in that period over savings out of the income of the preceding period. But we must remember our definition of a “period”; it is of such length that though one can receive an income in it he cannot dispose of that income until the next period. It is therefore a short period of time, as indeed it has to be to permit us to scrutinize closely the processes of creating and disposing of income. But it must be emphasized that an original change in the size of the money income may lead to a much larger or multiplied change in money income if a longer time comprising several of these periods is considered. And though the original change in income may have represented a change in the rate of spendings for investment, the multiple effect is traceable to induced changes in the rate of spendings for consumption. This multiple effect is usually called the “multiplier.”

The Multiplier Effect of an Increase in Investment

To explain the nature of the multiplier let us first consider the case of an increase in money income resulting from an original increase in the rate of expenditures for investment. In one example discussed earlier (Fig. 21) we found that money income rose from \$100 in period 0 to \$110 in period 1 as a result of the increase of investment from \$20 in period 0 to \$30 in period 1, consumption being at \$80 in each period. The immediate and direct effect of the \$10 increase in the rate of investment, with consumption remaining at the same level in the two periods, is, of course, to raise the money income in period 1 to a level \$10 higher than it was in period 0. But is it not clear that in period 2 and in subsequent periods the money income is likely to be increased still more, even if investment spending continues at the new level of \$30 per period, and that this further increase in income will result from an induced increase of consumption spending? We shall deal here only with the induced increase of personal consumption, leaving government consumption for later treatment.

In period 2 the money income available for disposal is the \$110 spent for output in period 1; this is \$10 more than was available for disposal in period 1. With disposable money income at this higher level, what is likely to happen to individual consumption in period 2? Both a priori reasoning and statistical studies indicate clearly that part of the increase in money income is likely to be used to increase consumption spending. It would be unusual for the rate of consumption to remain unchanged in the face of an increase in money income. On the other hand, we would not expect all the increase in money income to be used to increase individual consumption. There are two reasons for this. (1) Not all the increase in money income will become increases in the disposable income of individuals; a part of the increase is likely to flow into the disposable incomes of business firms and the government. (2) Individuals are not likely to use all the increase in their disposable incomes to increase their consumption spending; they usually employ part of any such increase to raise their rate of saving. For these reasons, an increase in national money income is

likely to be accompanied by a less than equivalent increase in consumption. Economists apply the term "marginal propensity to consume" to the ratio of the increase of consumption to the increase of money income. The marginal propensity to consume equals $\frac{\text{Increase in consumption}}{\text{Increase in money income}}$. Thus, the marginal propensity to consume is 0.8 if the rise in consumption is $\frac{8}{10}$ of the increase in money income. It is 0.2 if the rise in consumption is $\frac{2}{10}$ of the rise in money income. Let us assume for our example that the marginal propensity to consume is 0.5; one-half of each increase in national income is used to increase consumption.

Returning now to our example, we found that the disposable income of period 2 was raised by \$10 by the increase of investment in period 1. Let us assume that investment remains at this new level of \$30 per period. If the marginal propensity to consume is 0.5, one-half of the increase in disposable money income, or \$5, will be used to increase consumption spending in period 2. This rise in consumption spending will increase the money income of period 2 by another \$5. If the marginal propensity to consume remains at 0.5, one-half of this further increase in money income in period 2 will be used in period 3 to increase consumption still further. And so on from period to period, one-half of each increase in money income in a given period being used to increase the rate of spending for consumption in the next period. When sufficient time has elapsed for the full effects to be evident, money income will be found to have risen by a multiple of the original rise in the rate of investment.

Table 66 shows the operation of the multiplier when the marginal propensity to consume is 0.5. From this table it is clear that money income in period 1 is only \$10 higher than in period 0, all the increase representing the original rise in the rate of investment spending. In period 2, however, money income rises another \$5 because of the induced increase in consumption spending. In period 3 consumption and money income rise another \$2.50 because of the induced increase in consumption and money income that occurred in period 2. In period 4 consumption and money income rise by another

TABLE 66. THE MULTIPLIER WHEN THE MARGINAL PROPENSITY TO CONSUME IS ONE-HALF

Period	0 Levels	Increase in Investment over Period	Increase in Consumption	Total Rise in Consump- tion over Period 0 Levels	Total Rise in Investment and Consumption over Period 0 Levels
1		\$10			
2	10	\$5		\$5.00	\$15.00
3	10	5 \$2.5		7.50	17.50
4	10	5 2.5 \$1.25		8.75	18.75
5	10	5 2.5 1.25 \$.625		9.375	19.375
6	10	5 2.5 1.25 .625 \$.312		9.687	19.687
7	10	5 2.5 1.25 .625 \$.312 \$.156		9.843	19.843
8	10	5 2.5 1.25 .625 .312 \$.078		9.921	19.921
9	10	5 2.5 1.25 .625 .312 .156 \$.039		9.960	19.960
10	10	5 2.5 1.25 .625 .312 .156 .078 \$.02		9.980	19.980
11	10	5 2.5 1.25 .625 .312 .156 .078 .039 \$.01		9.990	19.990
12	10	5 2.5 1.25 .625 .312 .156 .078 .039 .02 \$.005		9.995	19.995
13	10	5 2.5 1.25 .625 .312 .156 .078 .039 .02 .01 \$.002		9.997	19.997
14	10	5 2.5 1.25 .625 .312 .156 .078 .039 .02 .01 .005 \$.001		9.998	19.998
15	10	5 2.5 1.25 .625 .312 .156 .078 .039 .02 .01 .005 .002 \$.0005		9.999	19.999

\$1.25 because of the induced increase in consumption spending in period 3. And so on. When the full expansion has occurred, we find that money income has increased \$20 above the period 0 levels, \$10 of this representing the rise in the rate of investment spending and \$10 representing the induced rise in consumption. The rise of money income is two times the original increase in investment; the multiplier is 2.

The nature of the multiplier effect may perhaps be clarified by a less technical treatment. Suppose that expenditures for the output of the capital goods industries increase without any corresponding reduction in consumption, and that it is permitted to do this by dishoardings or the creation of new money. This means, of course, an increase in the incomes of those in the capital goods industries. With higher incomes, they are likely to increase the rate of their consumption spending, thereby increasing the money incomes of those engaged in turning out consumption goods and services. Enjoying higher incomes, the members of the consumption goods industries are likely to increase their own consumption, thereby increasing still further the incomes and purchases of those in the consumption goods industries. And so on, until the full multiplier effect has been attained.

We found in our example that when the marginal propensity to consume is 0.5, the multiplier is 2; money income is increased by twice as much as the original rise in investment. But it should be evident that the size of the multiplier varies with the marginal propensity to consume, being high when the marginal propensity to consume is high and low when it is low. If the marginal propensity to consume is high, say 0.9, then $\frac{9}{10}$ of the increase in money income in any period will return to the market as increased consumption in the next period. Thus if the original increase in money income is \$10 in period 1, consumption will rise by \$9 in period 2; in period 3 it will rise still further by an amount equal to $\frac{9}{10}$ of the \$9 increase in period 2, or \$8.10; in period 4 it will rise still further by an amount equal to $\frac{9}{10}$ of the \$8.10 increase in period 3; and so on. The total rise of income will be \$100, or \$10 + \$9 + \$8.10 + \$7.29 + \$6.56 + \$5.90 + \$5.31 + \$4.78 + \$4.30 + $\dots$. In this case the multiplier is 10. But if

the marginal propensity to consume is very low, say 0.2, only $\frac{2}{10}$ of the increase in money income in any period will appear as an increase in consumption in the next period. In this case the rise in money income resulting from a \$10 increase in the rate of investment will be only \$12.50, or $\$10 + \$2 + \$.4 + \$.08 + \$.016 + \dots$. The multiplier in this case is only 1.25. The general formula for determining the size of the multiplier

is $\frac{1}{1 - \text{the marginal propensity to consume}}$

Thus, if the marginal propensity to consume is 0.8, the multiplier = $\frac{1}{1 - .8} = \frac{1}{.2} = 5$. If the marginal propensity to con-

sume is 0.2, the multiplier is $\frac{1}{1 - .2} = \frac{1}{.8} = 1.25$.

It must be remembered here that the multiplier effect under discussion is achieved through an induced increase in personal consumption spendings; we are not including in it any induced change in government consumption. But how large is this multiplier likely to be? What determines its magnitude? This amounts, of course, to asking how large the marginal propensity to consume is likely to be. Both the marginal propensity to consume and the multiplier depend on two general relationships: (1) the proportion of any increase in the national money income that goes to individuals as an increase in their disposable income, and (2) the proportion of any increase in their disposable income that individuals use to enhance their rate of consumption. Part of any increase in the national money income is likely to go into the disposable income of the government and business firms rather than to individuals. Government revenues—especially income taxes and taxes based on the volume of production or sales—are sensitive to income changes and tend to channel part of any increase in national income into the disposable income of the government. Another part of any increase in national income is likely to go into increased business gross savings as business firms increase their net savings. The larger the part of any increase in the national money income that goes into the

disposable income of the government and corporations, the smaller is the multiplier likely to be, because individuals increase their consumption primarily in response to increases in their disposable income. But the extent to which people increase their consumption in response to an increase in their disposable money income also varies with the level of income at which the increase occurs. If the increase occurs when incomes are at low depression levels, the marginal propensity to consume is likely to be high, because impoverished people will feel acutely the urge to increase their consumption. The marginal propensity to consume is likely to be lower, however, if the increase occurs at already high income levels. With an already high level of consumption, people are likely to save a larger part of the increase in their incomes. The marginal propensity to consume will also depend on the extent to which the rise in money incomes is manifested in price increases and in an increase in real income. If the rise is paralleled by a proportional increase in the cost of living the marginal propensity to spend for consumption is likely to be very high as people attempt to maintain their rate of consumption of real goods and services. But it is likely to be lower if the rise in money income is not accompanied by much of an increase in the cost of living, the rise in money income being largely a rise in real income.

We have assumed up to this point that the original increase in money income which engendered the multiplier effect resulted from a rise in the rate of investment. This was done because investment is so volatile that most of the original changes in money income are likely to emanate from changes in its rate. But we must recognize that an original increase in the rate of consumption, with investment remaining constant, is also capable of setting the multiplier into operation. Suppose, for example, that consumption rises from \$80 in period 0 to \$90 in period 1, investment continuing at the rate of \$20 in both periods. With a \$10 increase in its income available for disposal in period 2, the community is likely to increase its consumption still further. The multiplier will operate in this case just as it would if the original impulse had come from a rise of investment.

The Multiplier Effect of a Decrease in Investment

The preceding section dealt at length with the multiplier effect of an original increase in investment. But a similar multiplier effect is likely to follow an original decline in money income resulting from a decline in the rate of investment without a simultaneous and offsetting rise in consumption. In fact, the explanation of the multiplier during an expansion can be applied to this case by substituting "decrease" for "increase." It may be useful, however, to outline briefly the multiplied decline.

To do this, let us recall the example in which the national money income declined from \$100 in period 0 to \$90 in period 1, the \$10 decline representing the deficiency of investment in period 1 relative to savings out of the income of period 0 (Fig. 20.) With a \$10 decline in its disposable income, the community is likely to reduce its consumption in period 2, the amount of the decline depending on the size of the marginal propensity to consume $\left(\text{in this case } \frac{\text{the decrease in consumption}}{\text{the decrease in money income}} \right)$. If the marginal propensity to consume is 0.5, consumption in period 2 will fall \$5, thereby depressing still further the national money income, inducing a further decline of consumption in period 3, and so on. The size of the multiplier in the downswing depends on the same types of factors as in the upswing. The decline will continue until the national money income has fallen to such a level that the community no longer tries to save more than can currently find outlet in investment spending for output.

OTHER CUMULATIVE EFFECTS

It must be emphasized again that the multiplier effect just discussed is achieved through induced changes in the rate of individual consumption following an original change in money income traceable—usually—to a change in the rate of investment. We assumed that investment, after its original change, remained constant at the new level and we neglected

effects on the rate of government consumption. This was done to isolate the multiplier effects secured through the induced change in individual consumption. At least the direction of these induced changes in consumption is usually predictable, though the size of the multiplier may not be. But it would be a serious mistake to assume that the multiplier effect represents the entire cumulative effect that is likely to follow an original change in the national money income. The total cumulative effect must also include (1) the effects on government consumption and investment, and (2) further effects on private investment.

It is difficult to generalize about the effects of an original decline in money income on government expenditures for output, because this depends on changing fiscal policies. But it is evident that if the government merely follows a policy of spending for output an amount exactly equal to its disposable income it will tend to accentuate fluctuations emanating from the private sectors of the economy. When, for example, the national money income increases, the disposable income of the government is likely to rise. If the government increases its spending for output accordingly, it contributes to a further expansion of income. When the national money income falls, the government's disposable income is likely to fall, and the government will contribute to the fall if it reduces its spending for output. It can, however, act as a balance wheel by reducing its expenditures during periods of general expansion and increasing them in times of general decline.

We are now painfully aware of the fact that an original change in money income is likely to lead to a magnified change in private investment. Let us examine first the case of a decline. In explaining the downward multiplier effect we assumed that investment fell from \$20 in period 0 to \$10 in period 1 *and then remained at the \$10 level*. An induced decline in consumption followed. But will investment remain at the \$10 level in face of the drop in money income resulting from the original fall in investment and the induced decline in consumption? Probably not. Faced with a decreased effective demand for their output, enterprisers will be less willing to purchase capital goods with which to effect a net increase in

their productive capacity, they may be reluctant to purchase new equipment which will lower their costs only if operated at or near capacity levels, and they may not spend enough to offset the depreciation of their plants. Certainly they are likely to allow their inventories to drop. Thus, an original decline in investment may through the multiplier effect lower consumption, which will lower investment still further, which will lower consumption still more, and so on. The national money income may have to drop very low indeed to decrease savings to the falling level of investment.

An original increase in money income is likely to lead to a magnified increase in private investment. In explaining the upward multiplier effect we assumed that investment rose from \$20 in period 0 to \$30 in period 1 *and then remained at the \$30 level*. An induced rise in consumption followed. But investment is not likely to remain at the \$30 level in the face of the rise in money income resulting from the original rise in investment and the induced rise in consumption. Enjoying an increased effective demand for their output, enterprisers are likely to increase their gross investment not only to offset depreciation of their existing capital goods but also to effect net increases in their capacity and to introduce new types of machinery that promise to lower costs now that full or near-full utilization seems attainable. Thus, an original rise in investment may through the multiplier effect increase consumption, which will increase investment still further, which will raise consumption still more, and so on. The national money income may rise to very high levels before the expansion is brought to an end by the nation's willingness to save the large amount that is being spent for investment.

SELECTED READINGS

See list at end of Chapter 30.

Private Investment

IN THE PRECEDING CHAPTER WE FOUND THAT THE NATIONAL money income can rise from one period to the next by an amount equal to the excess of investment over savings out of the money income of the preceding period, and that it can fall from one period to the next by an amount equal to the deficiency of investment relative to savings out of the money income of the preceding period. We also saw that an original change in money income may generate still further changes of a much larger magnitude through the multiplier effect on individual consumption spending, through induced changes in government spending, and through further changes in the rate of private investment. We must now ask, "Why do these fluctuations occur?"

To answer this question, let us assume that for several periods prior to period 1 the national money income has been flowing at a stable rate of \$100 per period, with consumption at the rate of \$80 and saving and investment at the rate of \$20 per period. It is important to note that investment in period 1 can exceed savings out of the money income of period 0 in any one of three ways: (1) Investment spending may rise without a rise in savings. This is the same as saying that investment rises without a decline of consumption, for savings in period 1 are equal to the money income of period 0 minus consumption spending in period 1. (2) Consumption may rise in period 1 while investment continues unchanged.

This is the same as saying that savings decline without a decline in investment. (3) All the items may change, but investment rises more than consumption declines, or consumption rises more than investment declines. In comparable ways investment in period 1 may be deficient relative to savings out of the income of the preceding period, thereby lowering money income. (1) Investment may decline without a corresponding and simultaneous decline in savings, that is, without an offsetting simultaneous rise in consumption. (2) Savings may rise—consumption may fall—while investment remains stable. (3) All the items may change, but investment falls more than consumption rises, or consumption falls more than investment rises.

It is important to recognize the possibility that changes in the national money income can be initiated by shifts in the proportion of the stable money income used by the community for consumption and saving. Thus an expansion might be initiated by a marked increase in consumption and decrease in saving, investment tending to remain constant until it responded to the effects of increased consumption spending. Or a contraction of money income might be initiated by a marked decrease in consumption and rise in saving, investment tending to remain constant until it responded to the effects of decreased consumption. Some initial changes in the national money income are probably initiated by such shifts in consumption and saving out of what was previously a stable money income. But economists are now pretty well agreed that most fluctuations are not initiated in this way. The nation's propensity to consume and to save out of a *given level of income* seems to be relatively constant. Consumption spending and the rate of saving do vary widely as the level of national income fluctuates, as we saw in Chapter 30. But these changes in the rate of consumption and saving are both results and aggravating responses to initial changes in money income which economists agree are usually traceable to fluctuations of investment spending. Private investment expenditures both for maintenance of capital and for net capital accumulation are highly volatile.

PRIVATE GROSS INVESTMENT

Total private gross investment during any period is, of course, the sum of the expenditures by business firms and individuals to maintain and expand their stock of capital goods. And the great bulk of this is spent by firms and individuals intent upon maximizing their profits. In determining whether or not to make such a capital expenditure they ask, "Will the acquisition of this capital good add at least as much to my revenues as it adds to my costs?" This is true of purchases for replacement as well as for making net additions to capital. Investment by each firm will be carried to the point—certainly not beyond that point—where the expected marginal value productivity of the new capital goods is equal to the rate of interest that must be paid for the funds borrowed to make the investment.¹ The rate of private investment depends, therefore, on the schedules of (1) the expected marginal value productivity of new investment goods, and (2) prevailing rates of interest.

Expected Marginal Value Productivity of New Investment Goods

By the expected marginal value productivity of new investment goods we mean the yearly amount, stated as a percentage of cost, that the acquisition of the new capital good is expected to add to the enterpriser's net revenues after he meets all the additional costs of operation except the interest charges on the funds used. We may call these the net returns expected on new investment. The magnitude of these expected net returns depends on many conditions, some of the most important of which are indicated in Table 67.

One factor affecting expectations as to the amount that a capital good will add to net revenues is anticipation regarding the net amount that it will add to physical output. This varies

¹ If stock is issued a payment comparable to interest must be expected by the security purchasers. If an individual or firm contemplates using its own Savings for Investment it must consider the opportunity cost (interest) that could be received if the funds were lent to others.

with the capacity of the equipment under consideration and with the steadiness and intensity at which it is expected to be utilized. The importance of capacity is evident; other things being equal, a capital good capable of a large output will be valued more highly than one with only a small capacity. But steadiness and intensity of operation are also important. Many a purchase of capital goods that would appear highly profitable if the enterpriser expected a high enough demand for his output to permit full utilization of his plant—including full utilization of the newly acquired capital goods—will not be profitable at all if the demand for his output is not expected

TABLE 67. SOME DETERMINANTS OF THE EXPECTED NET RETURNS FROM NEW INVESTMENT

- I. The net amount that it is expected to add to physical output.
 1. Its capacity.
 2. The expected steadiness and intensity of its utilization.
- II. The expected selling price per unit of output.
- III. The expected costs of operating the capital good.
 1. Wages, taxes, etc.
 2. The rate of depreciation and obsolescence.
- IV. The prevailing state of "business psychology."
 1. "Overoptimism."
 2. "Overpessimism."

to be large enough to permit full utilization of the new capital goods. This is a highly significant fact in the business cycle. In prosperity periods when existing capital is being fully utilized and the effective demand for output is expected to rise still further, enterprisers expect to be able to secure full or near-full utilization of a large volume of new capital goods which will be used not only to replace depreciating and obsolete equipment, but also to effect a net increase in capacity. The situation is reversed, however, in periods of depression when the demand for output is so low that many firms are already burdened with excess capacity and fear that the demand will decline still further. At such times enterprisers may not be able to utilize capital goods purchased for replacement, let alone net additions to their capacity.

Enterprisers' expectations as to the net returns on new investment are also influenced markedly by their anticipation

as to the future behavior of the prices of their output relative to their costs of operation. Expectations are improved if selling prices are expected to be high relative to operating costs, and they are depressed by expectations of low selling prices relative to costs. Fluctuations of price-cost relationships obviously cause profit expectations to vary widely during the different phases of business cycles, because selling prices tend to rise faster than costs in the upswing, at least until the later stages of the prosperity period, and to fall faster than costs in the downswing.

Thus, all private investment is forward-looking and undertaken for the purpose of reaping future returns, the size of which depends upon the future behavior of the various classes of phenomena just outlined. But no enterpriser can predict economic events with any high degree of certainty. He cannot know how intensively he will be able to utilize new equipment, or what price he will secure for his output five years or even a year hence, or how his operating costs will behave, or how soon the capital good will become obsolete because of discoveries and inventions. The small enterpriser is forced to stake his financial success upon more or less intelligent guesses or "hunches," and the enterpriser who has the best statistical and business forecasting services at his disposal had best regard their predictions with skepticism. In view of the vagueness and scarcity of any knowledge of the future and the precariousness of any forecast based upon that knowledge, it is not at all surprising that when enterprisers form their expectations as to the future, they should rely heavily upon the existing situation and the trend of the immediate past, and that they should assume that the prevailing situation or the trend of the immediate past will be projected into the future, with only those alterations that there are discernible reasons to expect. As J. M. Keynes has put it,

It would be foolish, in forming our expectations, to attach great weight to matters which are very uncertain. It is reasonable, therefore, to be guided to a considerable degree by the facts about which we feel somewhat confident, even though they may be less decisively relevant to the issue than other facts about which our knowledge is

vague and scanty. For this reason the facts of the existing situation enter, in a sense disproportionately, into the formation of our long-term expectation; our usual practice being to take the existing situation and to project it into the future, modified only to the extent that we have more or less definite reasons for expecting a change.²

This convention of projecting the present situation, and particularly the trend of the immediate past, into the future is another aggravating factor in the business cycle. In the period of upswing, an original increase in the profitability of production is likely to give birth to expectations of still greater profits, whereas in the downswing an original decline is likely to breed expectations of continued contraction.

Another consequence of the paucity and uncertainty of our knowledge concerning future economic events is that expectations are inordinately influenced by waves of excessive optimism and pessimism. Realizing the untrustworthiness of his own opinions with respect to the future, each person relies heavily upon those of others, which are as undependable as his own. By a process that only a social psychologist can explain, the public temperament fluctuates from exultation to melancholia. At one time it exhibits the exuberance and optimism of a New Era. Then it lapses into dark discouragement and despair. In these alternating periods of overoptimism and overpessimism, enterprisers are prone to overestimate and underestimate the returns to be realized from new investment.

. . . It is an essential characteristic of the boom that investments which will in fact yield, say, 2 per cent in conditions of full employment are made in the expectation of a yield of, say, 6 per cent, and are valued accordingly. When disillusion comes, this expectation is replaced by a contrary "error of pessimism," with the result that the investments, which would in fact yield 2 per cent in conditions of full employment, are expected to yield less than nothing; and the resulting collapse of new investment then leads to a state of unemployment in which the investments, which would have yielded 2 per cent in conditions of full employment, in fact yield less than nothing.³

² *The General Theory of Employment, Interest and Money*, Harcourt Brace, New York, 1936, p. 148.

³ *Ibid.*, p. 322.

The foregoing analysis of business expectations as to net returns from investment applies principally to capital goods of a durable nature, but it can be easily adapted to explain expectations of the profitability of accumulating or drawing down business inventories. Investment in additional inventories promises to be highly profitable when (1) prices are expected to rise and (2) demand is expected to continue at a high level or to rise further so that the increased inventories can be disposed of in the near future. But investment in additional inventories is likely to yield only a low profit

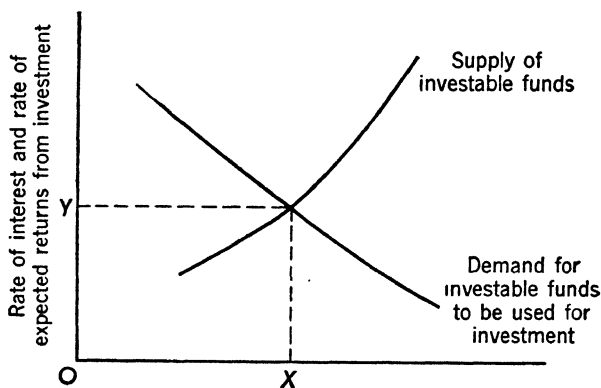


FIG. 22.

or to lead to losses when (1) prices are expected to fall and (2) demand is expected to continue at a low level or to fall further so that inventories can be disposed of only slowly.

At any given time each enterpriser has a schedule of expected returns from various amounts and types of investment. On some he may expect an annual net return of 10 per cent. On others he may expect less, and still others he believes will yield only a loss. Moreover, at any given time the various enterprisers have different schedules of expected returns from investment, for some believe that they can invest relatively large amounts at a high return, whereas others are less hopeful. As a result, when we add together the schedules of expected returns from investment of the various enterprisers of the nation at any time, we secure a curve with the familiar

shape of demand curves. For example, at a given time some investment is expected to yield at least 10 per cent a year on its cost, a larger amount is expected to yield at least 8 per cent, a still larger amount at least 4 per cent, and so on. Since each person and business firm tends to undertake investment up to the point at which the expected net return on the additional investment is equal to the interest rate that he must pay for the use of investable funds, the schedule of expected returns from investment will determine the demand curve for investable funds. The amount of investment that actually occurs during a period (OX in Fig. 22) and the height of interest rates (OY) are determined at the intersection of the supply curve of investable funds and of the demand curve for these funds.

THE RATE OF INTEREST AS AN EQUALIZER OF SAVINGS AND INVESTMENT

The classical economists contended, as we found in Chapter 21, that the rate of interest would adjust itself in such a way as to equalize savings and investment, and that it would do this without inducing decreases or increases in the level of national income. They assumed that the supply schedule of investable funds in the market is identical with the supply schedule of savings out of the level of income associated with full or near-full employment, and that interest rates—the price paid and received for the use of savings—would equalize savings and investment without causing a shift in the rate of expenditures for output. Any tendency for savings to exceed investment would be corrected by a decline in interest rates that would reduce saving and increase investment. And any tendency for investment to exceed savings would be corrected by a rise in interest rates that would reduce investment and increase savings.

The fundamental flaw in this analysis, as we also found in Chapter 21, is that the supply schedule of investable funds in the market is not necessarily identical with the supply schedule of savings out of a constant amount of money in-

come. The supply of investable funds can be less than the amount of savings out of disposable income during a "period" by an amount equal to net hoardings plus the net reduction of the money supply during the period. And the supply of investable funds can exceed the amount of savings out of disposable income during a period by an amount equal to net dishoardings plus the net increase of the money supply during the period. This is shown in Fig. 23.

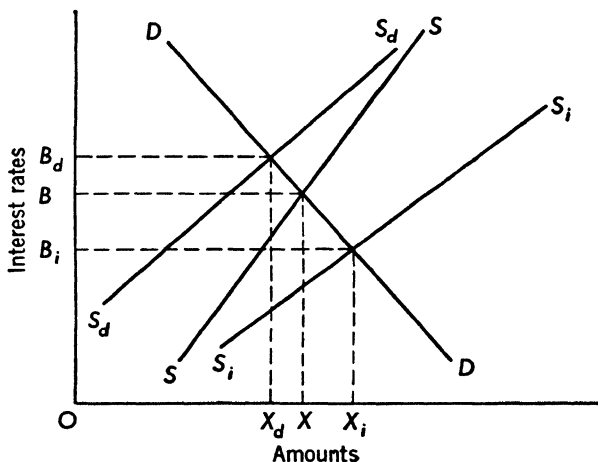


FIG. 23.

DD is the demand curve for investable funds at a time of full employment. SS is the supply curve of savings out of disposable income at full employment levels. If the supply curve of investable funds is, in fact, the same as the SS curve, interest rates will be at the level OB , and savings and investment at the rate of OX per period; investment will equal savings, with no induced change in the level of money income.

But we have seen that the supply of investable funds may be less than the savings schedule by amounts equal to the sum of net hoardings and the net decrease of the money supply during the period. The curve S_dS_d shows this situation, the horizontal distance between the SS and S_dS_d curves measuring net hoardings plus the net decrease of the money supply. This

absorption of funds may be solely the result of banking policy, the banks feeling it necessary or at least advisable to curtail their credit; it may reflect solely the high regard for money as a store of value relative to other assets; or it may represent a combination of the two. But in such a case the rate of interest and the rate of investment are determined at the intersection of the DD and $S_a S_a$ curves, the rate of interest rising from OB to OB_a , and the rate of investment decreasing from OX to OX_a . Savings out of disposable income in the period will exceed investment by an amount equal to the horizontal distance between the DD and SS curves at the vertical height OB_a . This is only the initial change in money income, however. Following the initial change in money income the demand curve for investable funds (DD) is likely to decrease—to shift to the left—as profit expectations deteriorate. The supply curve of savings (SS) is also likely to decrease as disposable money incomes decline. The behavior of hoarding and of the money supply is difficult to predict, but there is at least the possibility that further hoarding and a further reduction in the money supply will be induced. Thus a cumulative decline of investment and money income may be initiated.

But it is also possible, as we have seen, for the supply schedule of investable funds to exceed the schedule of savings out of disposable income during a period. The $S_i S_i$ curve illustrates this situation, the horizontal distances between the SS and $S_i S_i$ curves measuring net dishoardings plus the net increase in the money supply during the period. These additions to the supply of investable funds may emanate solely from an increased ability and willingness of banks to increase their outstanding credit; they may result solely from a lessened desire of the community to hold money rather than other assets; or they may result from a combination of the two. But in such a case the rate of interest and the rate of investment are determined at the intersection of the DD and $S_i S_i$ curves, the rate of interest falling from OB to OB_i and the rate of investment rising from OX to OX_i . Investment will exceed savings out of the disposable income of the period by an amount equal to the horizontal distance between the DD and SS curves at the vertical level OB_i . But this is only the initial

increase of investment and money income. Following this initial rise of money income the demand curve for investable funds is likely to increase—to move to the right—as profit expectations rise. The supply curve of savings is also likely to rise with the increase in money income. The behavior of disboardings and of the money supply is again difficult to predict, but additional funds from these sources may flow into the money markets with the rise in money incomes. Thus a cumulative rise of investment and money incomes may be initiated.

Let us summarize our principal findings up to this point. (1) Enterprisers' demands for funds to use for investment are based on their expectations as to the annual net return that they will receive on new investment. Each invests up to the point at which his expected net return on additional investment no longer exceeds the rate of interest he must pay for the use of investable funds. (2) The supply of investable funds depends not only on the rate of savings out of disposable incomes but also on current hoarding or dishoarding and current changes in the money supply. (3) The rate of interest and the rate of private investment at any time are determined at the levels where the supply of investable funds and the demand for these funds are equalized. With these facts in mind it is easy to see that the rate of investment can be altered either by changes in the supply schedule of investable funds or by changes in the demand schedule for investable funds emanating from changes in enterprisers' expectations as to the net returns to be secured from new investment. An increase in the supply of investable funds tends to lower interest rates and to increase investment unless offset by a decline of enterprisers' expectations, whereas a decrease in the supply of investable funds tends to have the opposite effect. On the other hand, an increase in enterprisers' expectations as to the profits to be realized from investment increases the demand for investable funds and will increase the rate of investment in the absence of an offsetting decrease in the supply of investable funds and a rise in interest rates. A deterioration of enterprisers' expectations decreases their demand for investable funds and tends to reduce investment unless offset by a

sufficient rise in the supply of investable funds and a sufficient decline in interest rates.

THE SUPPLY OF INVESTABLE FUNDS

The supply curve of investable funds can be increased or decreased—shifted to the right or left—by changes in any one or more of its components: savings out of disposable income, hoardings or dishoardings, and changes in the money supply. Changes in the rate of savings *out of a given level of disposable income* need not change the level of money income if the shift in the rate of savings is accompanied by an exactly equivalent shift in the supply schedule of investable funds. A decision by the community to save a smaller part of a given amount of income—a decrease in the propensity to save—if not offset by changes in the money supply or people's desire to hold idle balances will tend to decrease the supply of investable funds, to raise interest rates, and to decrease investment. But it also represents an increase of consumption, so the decline in investment need not lower money incomes. Similarly, a decision by the community to save a larger part of a given amount of income—an increase in the propensity to save—will, in the absence of offsetting changes in the money supply and in people's desire to hold money, increase the supply curve of investable funds, lower interest rates, and increase investment. But the rise of investment will be offset by a decline of consumption, so no net rise of money income need occur. Offsetting changes of consumption do not take place, however, when the supply curve of investable funds is shifted by shifts in the community's desire to hold idle balances or by changes in the money supply.

In discussing the community's preference for holding money rather than other assets—its demand for money to hold—it is important to distinguish clearly between (1) the elasticity of its demand for money holdings relative to interest rates on other assets, and (2) shifts in the schedule of the demand for money holdings relative to other assets, that is, shifts in the preference for money rather than other assets at each rate of

interest. Let us discuss first the elasticity of the demand for money holdings at any given time relative to interest rates. We saw in Chapter 21 that people prefer money as a store of value because the holding of other assets involves, in varying degrees, the disadvantages of (1) the inconvenience of buying, holding, and disposing of them, (2) illiquidity, and (3) the risk of losing principal value because of the possible failure of the debtor to meet his obligations or because of a future rise in interest rates. It is easy to see, therefore, why at any given time and with a given set of expectations in the community, the amount of money actually held as a store of value will tend to be sensitive to the height of interest rates, being smaller at higher rates and larger at lower rates. If interest rates are relatively high, the compensation for holding assets other than money is sufficiently great to offset a large amount of inconvenience, illiquidity, and risk. Moreover, if interest rates are high relative to those to which the community has been accustomed, the risk of loss from higher rates in the future is considered small. Thus, with relatively high interest rates the community tends to hold smaller amounts of money as a store of value. But under the same conditions, it will hold more money as a store of value at lower interest rates, because the lower rates will not offset so much inconvenience, illiquidity, and risk of holding other assets. Moreover, this risk is likely to be considered large at low interest rates because there is more of a chance that these rates will rise in the future. This elasticity of money holdings relative to interest rates is highly important. For example, it helps to explain why the monetary authorities may find it extremely difficult to lower interest rates by increasing bank reserves. The banks themselves may prefer to hold idle reserve balances rather than lend or purchase securities at very low rates of interest and assume the inconvenience, illiquidity, and risk involved. And even if the banks do create additional money by purchasing securities, the other members of the community may elect to add the funds to their idle balances rather than buy securities or other assets with yields far below those to which they are accustomed. At rates of interest below what they consider

“normal”—this usually means “customary”—people may elect to hold large amounts of money rather than other assets as a store of value.

The preceding paragraph dealt with the elasticity of the demand for money holdings as a store of value at different levels of interest rates; it related to a given set of conditions and to given expectations. But the supply schedule of investable funds can be shifted by changes in the community's preferences for money relative to other assets at each interest rate. This is highly important in business cycles. In a recovery period, when confidence is rising, people may come to consider the liquidity of assets high and the risk of holding them very low. They may therefore reduce the amount of money that they elect to hold as a store of value at each interest rate and dishoard large amounts, thereby raising the supply of investable funds and tending to lower interest rates and to encourage investment. But during business recession and depression as expectations deteriorate, estimates of the illiquidity and risk of holding other assets are likely to rise. People therefore tend to increase the amount of money held as a store of value at each interest rate, thereby lowering the supply schedule of investable funds, raising interest rates or at least retarding their fall, and discouraging investment.

The supply curve of investable funds can also be shifted by changes in the money supply. For example, owing to gold outflows or to restrictive central bank policies, the banks may be forced to reduce their loans and security holdings, thereby absorbing investable funds from the market. On the other hand, the banks may increase their loans and security holdings following gold inflows, liberalizing central bank credit policies, or other similar events. Shifts in the willingness and ability of the banking system to make loans and purchase securities are an important cause of changes in the supply of investable funds.

In summary, the supply of investable funds is a resultant of savings out of disposable income, hoardings and dishoardings, and changes in the money supply. The behavior of the supply of investable funds therefore depends on these factors.

Increases in the supply of these funds tend to lower interest rates and encourage investment, whereas decreases tend to raise interest rates and discourage investment.

SHIFTS OF ENTERPRISERS' EXPECTATIONS AS TO THE NET RETURNS FROM INVESTMENT

The rate of investment depends not only on the supply of investable funds, but also on enterprisers' expectations as to the net returns to be realized in the future on new investment. We must emphasize the fact that these expectations are extremely volatile. In fact, they are usually much more so than the supply of investable funds. At one time enterprisers believe that large returns can be realized on large amounts of new investment to maintain and expand their durable capital equipment and to build up their inventories. At another time their whole range of expectations is far lower. And these shifts in expectations are accompanied, of course, by correspondingly large shifts in demand schedules for investable funds.

Any one or more of several developments may raise enterprisers' expectations as to the profitability of new investment. (1) The emergence of large capital-using inventions and innovations such as railroads or airlines, or a larger number of smaller inventions. (2) Expectations of an increase in the demand for their output, so that they can utilize fully, or nearly so, not only newly purchased capital goods to replace those that are wearing out, but also large net additions to their capacity. (3) Expectations of a rise in selling prices relative to costs. This will not only increase the profitability of installing new durable capital goods, but it will also make additions to business inventories profitable. (4) A surge of optimism, whether or not it originally was well founded. Owing to developments such as these, enterprisers' expectations may rise greatly, thereby increasing their demand for investable funds. Investment will also increase unless the heightened expectations are offset by a sufficient rise in interest rates.

But will interest rates rise enough to offset the rise in expectations and prevent investment from increasing? They may, of course. But they are not likely to do so. This is especially true if the improvement in enterprisers' expectations stems from depression levels when hoardings have been large and banks have accumulated large excess reserves. A relatively small rise of interest rates may be sufficient to induce large dishoardings and a liberal expansion of bank credit. In fact, if the enterprisers' increased optimism regarding improved economic conditions is shared by the owners of investable funds, interest rates may not rise at all, or at least it may be delayed. Feeling that the liquidity and safety of holding securities has increased, banks and other holders of investable funds may decrease their preference for holding money and offer larger amounts for use at each rate of interest. But we should emphasize most of all that an original rise of investment will, by raising money incomes, increase the supply of savings out of disposable income. With higher money incomes the community will increase its savings, and these will help to finance investment and to retard the rise of interest rates. For all these reasons an increase in enterprisers' expectations need not be offset by a sufficient rise in interest rates; hence marked increases of private investment often occur.

Enterprisers' expectations may deteriorate for any one or more of several reasons. (1) An at least temporary "using up" of the most profitable opportunities for utilizing inventions and innovations. In the preceding period investment may have been at a high rate, but it may have supplied capital for the most profitable opportunities, leaving only the less profitable ones for further investment. (2) Expectations of a smaller rate of increase in the demand for output, or a leveling-off of this demand after a period of increase, or an actual decline in this demand. In the earlier period the demand for output may have been increasing at a rapid rate, so that a high rate of investment was necessary to provide the additional capacity required to meet the rising demand. A mere decrease in the rate at which the demand for output rises will decrease the amount of new investment necessary to expand

capacity to meet the demand. A complete cessation of the rise in the demand for output may make it impossible for enterprisers to utilize any further increase in capacity; hence their investment will fall to the level necessary to maintain their capital at a stable level. And if the demand for output is expected to decline, enterprisers may allow their capacity to decline, not spending as investment even enough to offset the depreciation of their capital. (3) Expectations of a drop in selling prices relative to costs. Such a decline not only would reduce the profitability of investment in durable capital goods but might also lead to a reduction of business inventories. (4) A surge of pessimism, whether or not it was originally well founded.

Owing to developments such as these, enterprisers' expectations may decline abruptly and far. In fact, many of the investment opportunities that previously were expected to yield large positive net returns may now be expected to yield only losses. Enterprisers' demands for investable funds decline along with their expectations. Investment will also decrease unless the decline in expectations is offset by a sufficient drop in interest rates.

But will interest rates fall enough to offset the deterioration of enterprisers' expectations and prevent a drop in investment? They may, of course, if the deterioration is not too great. But they are unlikely to do so, even if the "confidence" of banks and other owners of investable funds remains unimpaired. A relatively small decline in interest rates may induce hoarding and a decrease of the money supply. Banks may lower their interest rates on loans only slowly and hesitate to purchase securities with lower yields for fear that the rates will rise again later. Other owners of investable funds may hoard money because they feel that the lower interest rates do not compensate for the inconvenience, illiquidity, and risk of holding assets that are currently yielding less than the interest rate to which they have become accustomed. In fact, interest rates, especially those on long-term securities, may fall either not at all or only after a delay if the banks and other owners of investable funds share the enterprisers' new pessimism. Fearing that other assets will become more illiquid

and that the risks of holding them will be increased by the inability of debtors to meet their obligations, the owners of investable funds may greatly increase their preference for money relative to other assets as a store of value. Banks, sharing the pessimism, may reduce the volume of their outstanding credit in an attempt to become more liquid. Most of all, however, we must emphasize the fact that an original decline in investment, by reducing money income, reduces the supply of savings out of disposable income. With lower money incomes the community will save less and thereby retard the drop in interest rates.

For all these reasons a deterioration of enterprisers' expectations need not be offset by a sufficient drop in interest rates; consequently private investment often declines greatly. This is often followed, as we have seen, by cumulative declines in consumption and investment.

SUMMARY

Changes in the level of the nation's money income can be initiated by shifts in people's propensity to consume and to save out of a *given level of money income*, investment tending to remain stable until it is induced to change by the preceding change in consumption and savings. Thus an expansion of money income may be initiated by an increase in consumption and a decline in savings without a simultaneous and offsetting fall in investment. Or a decline of money income may be initiated by a drop in consumption and a rise in savings without a simultaneous and offsetting rise in investment. Although some fluctuations may originate in this way, most do not; the propensity to save and to consume out of a given level of money income seems to be relatively constant. It now appears almost certain that most changes in the level of income originate in fluctuations of investment, especially private investment. To understand income fluctuations we must therefore understand why private investment is so volatile.

The rate of private investment in any period depends on:
(1) Enterprisers' expectations as to the annual net returns to

be realized on new investment made for the purpose of maintaining and expanding their stock of capital. Enterprisers expand their investment to the point at which the expected net return on new investment is approximately equal to the interest they must pay for the use of investable funds. (2) The supply schedule of investable funds, as determined by savings out of disposable income, hoardings and dishoardings, and changes in the money supply. Changes in the rate of investment may occur because of changes in enterprisers' expectations, in the supply schedule of investable funds, or in both, if the changes do not offset each other. Enterprisers' expectations are highly volatile. At times they fall to very low levels. These drastic declines in expectations as to the profitability of new investment must lead to a decline in the rate of private investment unless offset by a sufficient increase in the supply of investable funds and a sufficient drop in interest rates. And for the various reasons indicated earlier, interest rates are not likely to decrease enough to offset a drastic decline in enterprisers' expectations. A sizable and perhaps cumulative decline in investment, consumption, and money income may follow. At other times enterprisers' expectations improve greatly, thereby raising the demand schedules for investable funds. An increase in private investment will follow unless offset by a sufficient decrease in the supply schedule of investable funds and increase in interest rates. As we have seen, interest rates are unlikely to rise enough to offset the rise in enterprisers' expectations, so that an increase, perhaps of a cumulative nature, in money income, investment, consumption, and savings may occur.

In the preceding section we emphasized that fluctuations of investment are usually induced by wide shifts of enterprisers' expectations unaccompanied by a sufficient adjustment of interest rates. Some explanations of business cycles are stated in terms of the sluggishness of market interest rates in adjusting to "equilibrium levels." But we must also recognize that private investment may fluctuate because of changes originating in the supply of investable funds and in interest rates. Thus, a decline in the supply of investable funds and a rise in interest rates will decrease private investment if not offset

by a rise in enterprisers' expectations. And a rise in the supply of investable funds and a drop in interest rates will increase private investment unless offset by a decline in enterprisers' expectations. This has important implications for monetary policy. By decreasing bank reserves and raising reserve requirements, the central bank may force the banks to restrict their credit, decrease the supply of investable funds, raise interest rates, and discourage investment. Or by supplying banks with large excess reserves it may increase the supply of investable funds, lower interest rates, and encourage investment. But we must remember that the central bank is not likely to be able to lower interest rates enough to offset a drastic decline in enterprisers' expectations during depression periods, both because the commercial banks may elect to hold excess reserves rather than lend and hold securities at very low rates of interest, and because other owners of investable funds have the option of holding money as a store of value rather than accepting low interest rates and bearing the inconvenience, illiquidity, and risk involved in holding other assets.

SELECTED READINGS

See list at the end of Chapter 30.

Business Cycles

IT IS OUTSIDE THE SCOPE OF THIS BOOK TO ATTEMPT A COMPLETE description of business cycles, to survey the various theories of the causes of cyclical fluctuations, or to analyze all the proposed remedies for these cycles. We can, however, look at some of the principal features of these cyclical fluctuations, with emphasis on their monetary aspects. We shall concentrate on the private sectors of the economy, treating government policy only incidentally.

The term "business cycles" means, of course, the alternate and cumulative rise and fall of money income, production, employment, and prices. "Cycles" need not be of uniform length from peak to peak or from trough to trough, and the amplitude of their fluctuations need not be uniform. Some cycles are of short duration; others cover a long period. In some the rise and fall of economic activity are great; in others they are smaller. These are cycles not in the sense of a uniform periodicity and amplitude of fluctuation but rather in the sense that economic activity reaches a peak of some duration, ceases its rise and falls cumulatively for a time, reaches a low point, and then begins a cumulative rise which later gives way to another cumulative fall. We shall divide a "typical" cycle into four stages for analysis: (1) the downswing—the cumulative decline; (2) the upturn—the point at which economic activity ceases to fall and the upturn begins; (3) the upswing—the cumulative rise; and (4) the downturn—the point at

which the cumulative rise is exhausted and the downswing begins.

We shall state our analysis in the terms used in the income and expenditure approach—national money income, consumption, investment, and savings. The downswing—the cumulative decline—is the cumulative fall in money income representing declining investment and consumption expenditures for output. The upswing—the cumulative rise—is the cumulative increase in money income representing increasing investment and consumption expenditures for output.

THE DOWNSWING

We shall begin our analysis with the downswing that occurs immediately after economic activity has ceased rising and has begun to decline. We shall deal later with the various factors that may have caused the downturn; it is enough here to note that the original decline in money income (spending for output) may have resulted from a decline in consumption not offset by a rise in investment, or from a decrease in investment not offset by a rise in consumption—more likely the latter. But whatever the cause of its original decline, the decrease in money income is likely to become cumulative, owing to the multiplier effect on consumption and to further declines in investment. With a decrease in their incomes, which may have originated in a decline in investment, people spend less for consumption. This decreases the incomes of those in the consumption goods industries, they in turn reduce their consumption, thereby lowering money incomes and consumption still further, and so on in the manner described earlier in our discussion of the multiplier. As money incomes fall, investment declines still further, thereby exerting still further multiplier effects on consumption, and so on.

Private Investment in the Downswing

Private investment drops precipitately in the downswing because of drastic declines in enterprisers' expectations as to

the net returns to be realized in the future—especially the near future—on new investment. In the preceding prosperity period enterprisers probably expected the demand for their output to remain at high levels or even to increase, so relatively large net returns could be made on investment not only to maintain their capital goods but also to expand capacity and increase their inventories. Now, when expenditures for output not only have ceased rising but are actually falling, the situation is completely changed. Anticipating no early increase in the demand for their output, enterprisers do not expect to be able in the near future to utilize any increase in their capacity. New types of equipment that would lower costs if fully utilized are now unattractive because the demand is expected to be insufficient to permit anything like full utilization. In the face of a declining demand for output enterprisers may not expect to be able to utilize even existing capacity and may not replace depreciating equipment. Pessimism is accentuated by the expectation that selling prices not only will not rise but will fall, whereas costs can be reduced only slowly. All these factors plus a perhaps exaggerated pessimism lower expectations as to the net return to be realized on investment in new durable capital goods. Expectations as to the profitability of accumulating business inventories are likely to decline even more drastically. Expecting a decreasing demand and lower selling prices, enterprisers are likely to decrease their inventories instead of increasing them.

The drastic decline in enterprisers' expectations need not, of course, decrease investment if offset by a sufficient increase in the supply of investable funds and a sufficient drop in interest rates. But a sufficient decline in interest rates is not likely to occur. The decline in expectations is usually so great, especially after the business decline is under way, that investment could be raised to full-employment levels only if interest rates were negative—only if enterprisers were paid to use funds for investment. And owners of investable funds can hardly be expected to accept negative interest rates as long as they have the option of holding money as a store of value without any significant cost. As a matter of fact, interest rates—especially those on long-term securities—are likely to

fall slowly. In a depression period when money incomes are at low levels, debtors are likely to default on many of their outstanding obligations, and the credit standing of many other people is in doubt. The outlook for profits on common and preferred stocks is certain to deteriorate. At such times the owners of investable funds are likely to believe that the liquidity of securities is lower than before and that the risk of not receiving interest and principal payments has increased. Moreover, as interest rates decline below the levels to which the community has become accustomed, the usual belief is that the risk involved in buying securities at current low yields is increased because of the greater chance of a rise in interest rates in the future. For these reasons the preference for holding money relative to other assets is likely to increase, thereby preventing or at least retarding a decline in interest rates. Financial institutions, including commercial banks, are also likely to try to achieve and maintain a highly liquid condition in order to meet the demands of their own creditors. The behavior of the commercial banks depends somewhat on central bank policy. If the central bank does not supply the banks with large excess reserves, the banks are likely to restrict their credit and help to decrease the supply of investable funds. But if the central bank floods the banks with excess reserves, it can at least reduce their incentive to reduce their credit in an attempt to achieve liquidity. We should emphasize, however, that the decline in investment and money income reduces people's ability to save out of their shrunken disposable income, thereby tending to retard still more the decline in interest rates. For all these reasons the drastic decline in enterprisers' expectations is usually not offset by a sufficient drop in interest rates, and private investment falls drastically.

This was clearly the case during the great depression beginning in 1929. Table 68 shows the behavior of gross private domestic investment, which represents non-governmental spending for new construction, producers' durable goods, and changes of business inventories. Gross private domestic investment spendings declined from a rate of \$15,800 million in 1929 to only \$900 million in 1932, a decrease of 93 per cent.

In the same period spendings for new construction declined about 78 per cent. Producers' purchases of durable equipment fell 72 per cent. Business inventories, which had increased

TABLE 68. GROSS PRIVATE DOMESTIC INVESTMENT, 1929-1946¹
(In billions of dollars)

Year	Gross Private Domestic Invest- ment	New Con- struction	Pro- ducers' Durable Equip- ment	Change in Business Inven- tories	Capital Consump- tion Al- lowances	Net Private In- vestment (Gross Private Domes- tic Investment Less Capital Consumption Allowances)
1929	\$15.8	\$7.8	\$ 6.4	\$ 1.6	\$ 8.6	\$ 7.2
1930	10.2	5.6	4.9	-0.3	8.6	1.6
1931	5.4	3.6	3.2	-1.4	8.1	-2.7
1932	0.9	1.7	1.8	-2.6	7.5	-6.6
1933	1.3	1.1	1.8	-1.6	7.1	-5.8
1934	2.8	1.4	2.5	-1.1	7.0	-4.2
1935	6.1	1.9	3.4	0.9	7.2	-1.1
1936	10.5	2.8	4.5	3.2	7.5	3.0
1937	11.4	3.7	5.4	2.3	7.8	3.6
1938	6.3	3.3	4.0	-1.0	7.8	-1.5
1939	9.0	4.0	4.6	0.4	7.9	1.1
1940	13.0	4.6	6.1	2.3	8.3	4.7
1941	17.2	5.7	7.7	3.9	9.1	8.1
1942	9.3	3.2	4.7	1.4	9.7	0.4
1943	4.6	2.0	3.8	-1.2	10.4	-5.8
1944	5.7	2.3	5.3	-2.0	11.6	-5.9
1945	9.1	3.1	7.1	-0.8	11.9	-2.8
1946	24.6	8.5	12.4	4.8	10.8	13.8

\$1600 million during 1929, were allowed to fall greatly as the outlook darkened. Faced with a decreasing demand and declining prices, businessmen considered it profitable to reduce their inventories rather than add to them. This accentuated the business decline, of course, for part of the shrunken demand for goods was met not out of current production but out of previously accumulated inventories. The figures above refer to private expenditures to maintain the capital supply as well as to increase it. The decline in net private domestic investment—the excess of gross investment over current capital consumption or depreciation—was even greater, as is shown

¹ *National Income Supplement to the Survey of Current Business*, July, 1947, pp. 19, 21.

in the last column of Table 68.² In 1929, gross private domestic investment exceeded estimated capital consumption by \$7200 million. But in each year from 1931 through 1935, capital consumption exceeded gross private purchases of capital goods; new capital production was not large enough even to cover current depreciation. The excess of estimated capital consumption over gross capital creation for the years 1931–35 totaled \$20,400 million. Thus a serious depression not only can deprive consumers of much-wanted consumption goods and services, but can also impoverish a nation by reducing its supply of capital goods. And in the meantime millions of men, large amounts of land, and billions of dollars' worth of existing capital goods lie idle.

Personal Consumption in the Downswing

We have already noted that consumption, reflecting the operation of the multiplier, falls with money income, the original decline in income reducing consumption, and each decline in consumption contributing to a further decline in income and consumption. The rate of consumer spending for consumption goods and services of all types declined 41 per cent between 1929 and 1933.³ But consumers, faced with lower incomes, did not decrease their expenditures proportionally for all types of these goods and services. Their expenditures for durable consumers' goods, such as automobiles, refrigerators and house furnishings, declined most of all—63 per cent. People could "make do" with their existing durable goods until "times got better." Expenditures for non-durable consumers' goods declined 41 per cent, and for consumer services 36 per cent.

Government Spendings for Output in the Downswing

It is difficult to generalize about the behavior of the government's demand for output during the downswing since this

² It must be admitted, however, that the estimates of capital consumption are rather arbitrary.

³ See Table 63

obviously depends on public tax, borrowing, and spending policies. Between 1929 and 1933 government expenditures for goods and services fell by 6 per cent. It seems likely, however, that in future depressions the government will more quickly increase its spending to offset the decline of private spendings, at least in part.

Net Foreign Investment in the Downswing

It is also difficult to generalize about the behavior of net foreign investment in the downswing, because this depends on economic conditions throughout the world. But it is important to note that a decline in net foreign investment such as occurred after 1928 can contribute to a depression, just as can a decline in domestic investment.

THE UPTURN

Why doesn't the cumulative decline in consumption and investment described above continue until everyone is unemployed, production comes to a virtual standstill, and a large part of the population starves or freezes to death? Why does the decline stop at some point and then, though perhaps only after a considerable period of "bumping along the bottom," yield to a cumulative expansion? Money income ceases to decline when the total of consumption and investment spending no longer declines. Or, to put it another way, money income ceases to decline when it has fallen so low that the community no longer tries to save out of its disposable income an amount greater than can currently find an outlet as investment spending. This suggests one limitation to the cumulative decline. As incomes decline, savings fall more than proportionally and may reach very low levels; consumption declines less than proportionally with incomes. For example, at the shrunken income levels of 1933, consumption spending amounted to \$46,300 million, whereas personal disposable incomes amounted to only \$45,200 million; our people as a whole spent for consumption \$1100 million more than their

disposable incomes.⁴ This tendency to spend all their income for consumption or to spend more than their incomes when the national income is at a low level tends to stop the decline in expenditures for output, though it is a brake that does not work until the nation is poverty-stricken. In 1933 the nation's gross savings—personal, business, and government—amounted to only \$2700 million. Thus, only a low rate of gross investment was needed to absorb such a low volume of saving. Even so, the national income might have fallen to even lower levels if the government had not that year borrowed and spent for output \$1300 million in excess of its disposable income.

There are, however, other factors that may stop the decline and initiate an expansion. (1) The mere passage of time and the wearing-out of capital goods may, at least in some industries, improve enterprisers' expectations and increase investment. After plants have deteriorated for a considerable period, enterprisers may have to increase their capital expenditures to meet current demands for output. This point will be reached more quickly if the population is increasing rapidly. (2) A decrease in the rate at which demand is declining or the cessation of the decline may improve enterprisers' expectations. When inventories have fallen to very low levels and demand ceases to decline rapidly, enterprisers may cease to meet demand out of accumulated stocks and may hire labor and other productive factors to keep their inventories from falling further or even to add to them. Moreover, a decrease in the rate of the decline or the cessation of it may lead enterprisers to believe that a rise is imminent and that they should hasten to purchase capital goods in order to take advantage of the current low prices and be ready for the recovery. (3) A few very important inventions or a large number of individually less important inventions may open up new profitable opportunities for investment. (4) A recovery of business abroad or a foreign war may increase the foreign demand for the nation's output. (5) An aggressive liberal central bank policy may succeed in increasing the supply of investable funds and in lowering interest rates. (6) The government may

⁴ See Table 63.

adopt a reflationary policy, borrowing large amounts which it then spends directly for goods and services or transfers to individuals for spending. (7) Any other factor, such as the election of a highly regarded man to the Presidency, or an expectation of war, or a feeling that recovery "just has to come soon," leads to a belief that the decline has about run its course and that an increase in demand and possibly in prices is in the offing.

This discussion of the types of developments capable of reversing the downswing and initiating an upswing indicates how difficult it is to predict when and how a decline will be reversed. This is especially true in the absence of an aggressive anti-depression policy on the part of the government. The weakest point in current business cycle theory is its explanation of the upturn. It is difficult to say whether this is due to a lack of perspicacity among economists or to a lack of dependable depression-reversing forces in a laissez-faire economy.

THE UPSWING

Once an upswing has started, however, it is relatively easy to understand how it becomes cumulative, especially if the preceding depression has been long and deep. With the initial rise in money income—whether it originated in a rise in consumption or investment, or both—consumption rises cumulatively by the process described earlier in our discussion of the multiplier; enterprisers' expectations improve, and investment rises. And these changes reinforce each other.

Private Investment in the Upswing

The upswing is characterized by a marked improvement in enterprisers' expectations as to the net returns to be realized on new investment and by a consequent rise in their demand schedules for investable funds. We have seen that in the preceding depression period enterprisers probably allowed their inventories to fall to low levels and instead of adding to their

stock of durable capital goods they allowed it to deteriorate. The outlook is quite different, however, when the decline in demand and prices ceases and gives way to expectations of an increase in demand and prices. Enterprisers now believe that they will be able to utilize fully not only their existing capacity but also large net additions to it. They also consider more favorably the idea of replacing obsolete capital goods with new types that will lower costs with full utilization but would not do so under part-time operation. Moreover, they are likely to be favorably disposed toward increasing their inventories. Stocks of goods that were considered adequate or more than adequate when demand was at a low level and was declining further and when selling prices were falling are likely to seem highly inadequate in the face of expectations of an increasing demand and rising selling prices.

An improvement in enterprisers' expectations need not, of course, lead to an increase in private investment if offset by a sufficient decline in the supply of investable funds and a sufficient rise in interest rates. But interest rates are not likely to rise quickly enough to choke off a rise in investment, at least not in the early stages. The rise in interest rates will be prevented or at least retarded by dishoardings, an increase in the money supply, and increased savings out of disposable income as the national income rises. The owners of investable funds, sharing the increased optimism, will probably consider securities and other assets less illiquid and less risky and will dishoard and offer for use a part of their idle money balances. Commercial banks, which probably have accumulated at least some excess reserves during the depression, will now, with the increased optimism and the unlikelihood of runs by depositors, be willing to increase their loans and security purchases. And savings out of disposable incomes rise as the national income increases. For all these reasons interest rates are not likely to rise fast enough to prevent the improvement in enterprisers' expectations from increasing private investment.

To illustrate the rise in private investment, let us look at the recovery period 1932-40. We shall not include the years after 1940 because they were dominated to such an extent

by defense and war activities. In 1940 gross private domestic investment was \$13 billion, or 1344 per cent above the 1932 level. New construction was up 170 per cent. Producers' purchases of durable equipment were up 239 per cent. And whereas business firms had allowed their inventories to decline by \$2600 million during 1932, they increased their inventories by \$2300 million during 1940. Net private investment rose even more markedly. Whereas gross private investment had in 1932 failed by \$6600 million to cover current capital consumption, in 1940 it exceeded current capital consumption by \$4700 million.⁵

Consumption in the Upswing

We have already noted that following the initial rise in money income, consumption increases and contributes to the cumulative upswing. Each rise in investment raises consumption, which increases money income still further, which further increases consumption, and so on. The rises in consumption and investment are mutually reinforcing.

From 1933 to 1940 personal consumption rose from \$46,300 million to \$72 billion, or 55 per cent.⁶ This increase in consumption spending was equal to 84 per cent of the increase in disposable personal incomes. But the increase in consumption spending was not uniform for all classes of consumption goods and services. Expenditures for durable consumers' goods rose 126 per cent, for non-durable consumers' goods 69 per cent, and for consumer services 29 per cent.

Government Spending for Output in the Upswing

Here again it is difficult to generalize about the behavior of government spending, for it depends, of course, on the fiscal policy. In the past, governmental units have tended to share the general psychology of business and to increase their expenditures in "good times," thereby tending to accentuate cumulative rises. It is possible, however, that in the future

⁵ See Table 68.

⁶ See Table 63.

they will tend to use their taxing, borrowing, and spending policies to combat cyclical fluctuations.

Net Foreign Investment in the Upswing

It is practically impossible to predict the behavior of net foreign investment during the upswing, for it depends on developments not only in this country but in other countries as well. If foreign countries buy more from us than we buy from them—if our net foreign investment is positive—this will be a factor that supports the level of our money income; it is a contribution to the rate of investment here. But if we buy more from other countries than they buy from us, our net foreign investment will be negative, and this will tend to decrease our rate of total investment.

THE DOWNTURN

We know that many cumulative upswings are brought to an end before the money demand for output has risen to such high levels as to produce serious price inflation, and that some of them end before full employment has been reached. What brings a cumulative expansion to an end and initiates a cumulative downswing? Many factors are capable of producing this effect. In some cases the downturn may be traceable to changes in only one of these factors. More often, however, it is probably traceable to a combination of conditions.

Money income ceases to rise, of course, when total expenditures for consumption and investment cease to rise, and it starts to fall when the spending for output starts to fall. Or, to put it another way, money income ceases to rise when in a given period investment spendings are no longer in excess of savings out of the money income of the preceding period. This suggests a highly important factor in limiting cyclical rises in money income. As money income rises, gross national savings rise even faster. For example, in 1933 when the GNP and the total disposable income of the country amounted to only \$55,800 million the nation's gross savings were only

\$2700 million. But in 1940 when the gross national income had risen to \$100,500 million, gross national savings had risen to an annual rate of \$15 billion. Assuming that the propensity to consume out of this level of income remains constant, the GNP could remain at this level only as long as investment remained at the high rate of \$15 billion a year. And the GNP could rise above and stay above this level only if investment spendings rose above and stayed above their high 1940 level. To put this in general terms, the national income can remain at full or near-full employment levels only as long as the private sectors of the economy, foreigners, and the government spend for investment at a rate as high as the very high rate of savings out of high levels of income. But many factors are capable of preventing investment from remaining permanently at such high levels.

Enterprisers' Expectations

We found that one of the characteristics of the upswing is a marked improvement in enterprisers' expectations as to the net returns to be realized on investment. This trend may be reversed later. At the beginning of the upswing enterprisers are likely to have very small inventories, their plants are in bad repair and their capacity has not been increased for several years, many new inventions have not been put into use during the depression period, there is a considerable amount of unemployment so that wage rates are not likely to rise rapidly, and consumption is expected to rise rapidly. All these conditions make for favorable investment opportunities. But as investment proceeds at a high rate it may "use up" the most favorable opportunities for investment, and new and equally favorable ones may fail to develop. At first, heavy investment in additional inventories may be required to bring them up to "normal" levels; later, however, further increases may be profitable only in proportion to the rise in demand. In good years gross private investment in durable capital is likely to be far in excess of capital consumption, the excess representing net additions to the capital supply. We found that net private investment (gross private investment

less current capital consumption) amounted to \$7200 million in 1929 and \$4700 million in 1940. In 1946 it amounted to \$13,800 million. Net increases in the capital supply may promise large returns during the earlier stages of the upswing because demand for output is rising rapidly and there are many accumulated inventions that have not yet been put into use. But as the capital supply accumulates, owing to the large net investment each year, the most favorable of the investment opportunities may be closed and equally profitable new ones may not appear.

There are other factors that may sooner or later lower enterprisers' expectations as to the net returns to be secured from new investment. Costs, which advanced only slowly in the earlier stages of the upswing when there was widespread unemployment, may rise faster as unemployment disappears and enterprisers bid against each other for the factors of production. Experience may prove that their earlier expectations were too sanguine, and enterprisers may then err in the direction of overpessimism. Foreign demand for the nation's products may decline. Or the collapse of a speculative stock market boom may lead people who believe that the stock market is an accurate forecaster of things to come to expect a general deterioration in economic conditions.

The Supply of Investable Funds

A decline in enterprisers' expectations as to the net return on new investment need not, of course, lead to a decrease in investment if the supply of savings increases sufficiently and interest rates decline sufficiently. And this adjustment might be expected to occur because of the high rate of savings out of high levels of income. It would if the supply of investable funds were identical with the schedule of savings out of the high level of income; in this case interest rates would fall to the level that would equalize savings and investment without a decline in income. But we have noted several times that the supply schedule of investable funds at any time need not coincide with the propensity of the nation to save out of its disposable income. It may be smaller by an amount equal to

net hoardings plus the decrease in the money supply during the period. The fall of interest rates may therefore be prevented or at least retarded by people's unwillingness to lend at the lower rates. Accustomed to higher rates, some individuals may feel that it is too risky to lend at the lower rates and thus may add part of their savings to their idle money balances. Moreover, the banks may contract their credit, or at least slow down or cease its expansion, because they have lent up to the limit of their reserves or have lost reserves because of the flow of coin and currency into circulation, gold outflows, or central bank action.

In fact, we must recognize the possibility that a downturn of investment may be induced by a decrease in the supply of investable funds and a rise in interest rates, or that an increase in interest rates can be at least one factor responsible for bringing about a downturn. For example, the collapse of a speculative stock market boom may cause owners of investable funds to fear that securities will become more illiquid and less safe and increase their preference for holding money rather than other assets. The commercial banks may raise interest rates by ceasing to expand their credit and perhaps even reducing it. This can happen without central bank intervention. In the early stages of the upswing the banks may have large excess reserves; hence for a time at least they can expand their credit liberally and contribute generously to the supply of investable funds. But a banking system operating under minimum reserve requirements cannot continue to expand credit indefinitely unless it can increase its reserves indefinitely. Even if its dollar reserves remain constant, the expansion of loans and security holdings will after a time lower its reserve-deposit ratio to the minimum. And its reserves may be reduced, either by gold outflows if the nation's money income and price levels rise relative to those of other countries, or by drains of cash into circulation as payrolls and retail trade increase. As banks approach and reach the "lent-up" stage, they will tend to reduce the supply of investable funds and to raise interest rates. The tightening of credit will be especially marked if the banks try to effect a net reduction of their credit. And this may well occur, for

there may be a delayed drain of cash or gold that will reduce bank reserves. In extreme cases the banks may attempt feverishly to reduce their credit and attain liquidity in the manner made so familiar by American banking panics. Such drastic reversals of banking policy from liberal credit expansion to panicky contraction are certainly capable of raising interest rates and reducing investment, and even milder changes may do so.

The change in the banks' lending and security-purchasing policies may be traceable to restrictive actions by the central bank. For example, in 1928 and 1929 the Federal Reserve System attempted to tighten credit in order to discourage stock market speculation. But its actions also tightened credit for private investment purposes and could have contributed to the downturn. Even central bank measures designed to combat an excessive rate of investment may actually bring on a downturn if they prove too severe. And after a downturn is well in process the central bank may find it difficult to lower interest rates enough to offset the deterioration of enterprisers' expectations.

In summary, private investment may decline because of either: (1) a decline in enterprisers' expectations as to the net returns to be realized on new investment which is not offset by a sufficient decline of interest rates, or (2) a rise in interest rates not offset by a sufficient rise in enterprisers' expectations as to the net returns to be realized from new investment. There are many factors that can bring about these conditions.

GOVERNMENT DEFICIT SPENDING AS A REMEDY FOR DEPRESSIONS

Prior to 1929 the principal remedy for business cycles proposed by economists was central bank action of the traditional types. Central banks should combat an overexpansion of investment and money incomes by tightening credit and raising interest rates, and they should combat an undesired decline in investment and money income by easing credit and reducing interest rates. Most economists still believe that

overexpansion can be prevented by prompt and aggressive restrictive policies by central banks, though many advocate the use of supplementary measures as well. But there has been a great weakening in the economists' faith in the ability of central banks, unaided by other powerful measures, to halt a depression by the familiar process of supplying the banking system with large excess reserves. Most economists still advocate a very liberal central bank policy as one part—and an important part—of a recovery program, but they do not believe that it can be successful alone. It can hardly be said that traditional central bank measures have been given a fair trial and found ineffective; the cases are rare indeed in which central banks have promptly and aggressively flooded banks with excess reserves at the first indication of a recession. Yet there are good reasons to believe that a central bank cannot lower interest rates fast enough or far enough to offset a marked deterioration in enterprisers' expectations, especially if this action is not taken until after the decline is already under way. The central bank can flood banks with additional reserves, but the ability of other owners of investable funds to hold money rather than other assets can prevent or at least retard the decline in interest rates and allow investment to fall.

As economists lost faith in the efficacy of central bank action they looked around for other depression remedies. One of the most popular remedies is deficit spending by the government. If private investment is deficient let government investment supply the deficiency; let the government borrow and spend. At first the emphasis was on the direct effects of government spending. It was pointed out that by borrowing and spending the government could put idle men to work, provide them with a means of livelihood, and at the same time augment the supply of useful public works. But later, as the cumulative processes of fluctuations in the national income came to be better understood, the emphasis shifted to the indirect expansionist effects of government deficit spending on the national money income. A dollar borrowed and spent by the government might raise the level of the national money income by several dollars. It is much to be preferred, of course,

that the government spending be done for useful projects, so that the benefits to the nation will include an increase in its stock of useful publicly owned capital goods as well as a multiple expansion of its income. But if no useful public works projects can be found during a depression, the national welfare may be promoted by government deficit spending for things that are in themselves useless, such as hiring a million men to dig postholes and another million men to fill them up, the increase in national welfare resulting solely from the multiple expansionist effect on the national income. The multiple effect on the national income emanates from: (1) the multiplier effect on consumption, and (2) possible induced increases in private investment. These will be treated separately, the multiplier effect on consumption being discussed first.

To explain the multiplier effect on personal consumption, let us recall the example used in Chapter 31, page 653, in which investment rose from \$20 in period 0 to \$30 in period 1, thereby raising the level of money income by \$10. We shall assume that the entire \$10 increase in investment resulted from a \$10 increase in government deficit spending which we have called government investment. Moreover, we shall assume that other investment remains unchanged, and that in period 1 and thereafter total investment, including government investment, remains at the rate of \$30 per period. The importance of these assumptions will be indicated later.⁷ The funds representing the government deficit may be put into the income stream in either of two principal ways: (1) by being spent by the government for new goods and services, or (2) by being paid out to persons or business firms as relief payments, bonuses, pensions, and so on. In the latter case

⁷ We shall also assume, in order to simplify this complex problem, that government tax collections remain constant. Actually, of course, they may increase as the national income rises. If they do, the government may use its increased revenues in two general ways: (1) To increase its expenditures so that its rate of spending equals its total disposable income plus the \$10 deficit each period. If it does this it will increase the multiplier effect. The increased expenditures out of its disposable income represent, in effect, increases in government consumption. (2) To reduce the size of its net deficit each period. This will be a decrease in government investment and will tend to retard the rise of the national income.

they become demand for goods and services as they are spent for consumption.

The \$10 increase in money income in period 1 traceable to the increase in government investment becomes available for disposal in period 2. With the rise in money income personal consumption spending will rise, this will increase money income further and induce a further rise in consumption, and so on in the manner described earlier in our discussion of the multiplier. The size of the multiplier will depend, of course, on the height of the marginal propensity to consume. If the marginal propensity to consume is 0.5, the national income will rise twice as much as investment. If the marginal propensity to consume is 0.8, the multiplier will be 5; the national income will rise five times as much as investment.

In the preceding paragraph we isolated the multiple effect on income exerted by the multiplier effect on consumption, assuming that there was no induced effect on private investment. It is important to note that if private investment does in fact remain unchanged at the period-0 level, the full multiplier effect on the national income will continue only as long as the government continues its \$10 investment in each period. As soon as it decreases its investment the national income will begin to decline; the multiplier will operate in the downward direction. Suppose, for example, that in period 16 the government discontinues its deficit spending and lowers its investment by \$10, thereby reducing the rate of total investment per period to the \$20 level. This will lower the money income in period 16. With lower disposable incomes, people in period 17 will decrease their consumption, which will lower money incomes further, which will further decrease consumption, and so on. When the full downward multiplier effects become apparent, the national money income may well have fallen back to the period-0 level. These facts are highly important for public policy. (1) If the rise of government investment has no effect on the rate of private investment, the multiple effects on the national money income will be exerted solely through the multiplier effects on consumption. (2) If the rise in government investment has no effect on the rate of private investment, the full multiplier effects

on consumption will last only as long as the government continues investment at the new increased rate. If the government ceases its deficit spending, consumption and the national money income will tend to drop back to their earlier level.

It should be evident, however, that an increase in government investment, especially a large increase, is likely to have at least some effects on the rate of private investment. It may, of course, tend to decrease private investment. (1) Government borrowing of the funds with which to finance its investment could raise the level of interest rates that have to be paid by private enterprise. But this certainly need not occur in a period of depressed business if the central bank follows a very liberal credit policy. Our experience after 1933, both during the great depression and in World War II, indicates clearly that large government borrowings may even be accompanied by declining interest rates if the central bank keeps banks well supplied with excess reserves. And the monetary authorities have no need to fear inflation in the midst of depression. (2) Government investment may increase the price of materials and labor and thus discourage private investment. Such increases are not likely to be extensive in a depression, however; furthermore the government investment also has the effect of raising the demand for enterprisers' output, so they can pay more for capital construction and still not suffer any reduction in their net returns from investment. (3) Government investment in a particular industry may lower enterprisers' expectations as to the net returns to be secured from private investment in that industry. For example, large government investment in electric utilities may discourage private investment in that field. The government can avoid this result by abstaining from investment in fields where private investment seems imminent. (4) Enterprisers' expectations may deteriorate for reasons that appear largely irrational; they may be unduly damaged by such cries as "socialism," "the end of free enterprise," and "the beginning of confiscatory taxation." Such fears should be capable of being allayed by an educational campaign which stresses that the purpose of deficit spending is to make the

capitalistic system work more effectively and to increase its chance of survival.

It appears that government investment in a period of recession should not reduce private investment if it is accompanied by a liberal central bank policy and if a conscious effort is made to avoid interference with private investment. But if the increase of government investment does reduce private investment the expansionist effects on the national money income will be smaller than was indicated earlier. The rate of total investment—government plus private—will rise less than government investment and the multiplier will operate only on the net increase in the rate of total investment.

It seems much more reasonable, however, to expect that an increase in government investment in a period of unemployment, especially a large increase, will actually induce an increase in private investment. It will do this by increasing the national money income, the early rise in the money income being made up in part of the increase in government investment and in part of the multiplier effect on consumption. As expenditures for output cease declining and start to rise, enterprisers' expectations should improve and private investment should rise, especially if interest rates are kept at low levels. As the rate of private investment increases, the rate of total investment rises more than government investment and the multiplier effect on consumption is enhanced. In this way a cumulative upswing may be induced.

We must note two facts that are highly important for public policy if the increase in government investment induces an increase in private investment. (1) The multiple expansionary effects on the national money income are enhanced, the total rise in the money income being made up of the increase in government investment, the induced increase in private investment, and the multiplier effect on consumption emanating from the increases in both government and private investment. (2) As private investment rises the government can gradually reduce and perhaps discontinue its investment without causing the money income to fall again. Suppose, for example, that a rate of investment of \$30 a period, together with the consumption spending associated with that level of

investment, produces a satisfactory level for the national money income. At first the government had to increase its investment by \$10 in order to raise total investment to \$30 a period, but as private investment increases the government can reduce its own investment without inducing a decline in the money income.

Thus the response of private investment is of crucial importance to a government deficit-spending program. To the extent that the rise in government investment is offset by a decrease in private investment the rise in the money income is reduced; the multiplier effect on consumption emanates only from the net increase of government plus private investment. If the rate of private investment remains unchanged, the multiple effects of the increase of government investment are exerted only through the multiplier effect on consumption, and a reduction and cessation of government investment are likely to be followed by a relapse of consumption and the national money income. But if the rise of government investment induces an increase in private investment the multiple effects on the national money income are increased, and the government can gradually reduce and perhaps even cease its investment without inducing a relapse of the national income.

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The Objectives of Monetary Policy

THROUGHOUT THIS BOOK WE HAVE INSISTED THAT IT IS THE functioning, and not the form, of a monetary system by which its success is to be judged. The broad fundamental purpose of money is to facilitate exchange so that we can utilize steadily and fully the high degree of specialization that has contributed so much to the productivity of modern economic systems. To make its greatest contribution to a high and steady level of exchange and specialization in the short run and to a satisfactory rise in production and trade over the years, a monetary system must provide an appropriate flow of expenditures for output and an appropriate behavior of price levels. Those who employ the transactions type of quantity theory for their analysis would say that the flow of expenditures (MV) must behave in such a way relative to the physical volume of trade (T) as to secure relatively stable prices and an adequate demand for output. Those employing the cash balance approach would say that the supply of money must be so regulated relative to the demand for it that the flow of spending will be adequate for full employment and prices will be relatively stable. Those using the income and expenditure approach would say that money must be managed in such a way as to equalize investment and savings at a level of national money income that will provide stable full employment and relatively stable prices. But though their approaches and their terminology differ, all these students of money emphasize the crucial importance of its functioning.

In our emphasis on the functioning of money we do not say that the forms of money are unimportant. They are highly important; but their importance derives from their effects on the functioning of money, and they should be judged on this basis. What type of monetary standard should we employ? Some type of gold standard? If so, what type? Some form of paper standard? If so, what form? How should we define the monetary unit? What types of money should be provided for circulation? How many and what types of money-creating banks should we have, and what limitations should be put on their operations? What powers should the central bank have, and who should wield them? What should be the Treasury's fiscal policy? These questions, and many others, can be answered intelligently only by reference to the effects on the functioning of the monetary system.

Another theme of this book is that human management of monetary systems is inevitable and that the government inevitably has great powers in this field. This is true even of so-called "automatic" systems. In fixing the "rules of the game" the government, by either action or inaction, inevitably affects the functioning of the system. This is true of the choice of the monetary standard, of the definition of the monetary unit, of the fixing of mint charges, of the terms of legal-tender laws, of the chartering of private money-creating banks, of the fixing of bank reserve requirements, of other regulations governing bank activities, and of the fixing of the powers of the central bank. But we might as well accept the fact that governments no longer merely "fix the rules of the game" and then stand neutrally aside, allowing the monetary system to operate "automatically" without further government influence. Central banks are integral parts of the monetary system and influence it, either by deliberate action or passive inaction. For example, the Federal Reserve System is not "neutral" if it passively allows member banks to borrow from or pay large amounts to it. The Treasury cannot escape having central banking powers. Exchange stabilization funds cannot avoid exerting an influence on both domestic and international conditions. Government borrowing, spending, and taxing policies inevitably affect the size of the national income

and the processes of consumption, investment, and saving. The credit policies of government financial institutions have inevitable effects on monetary flows. The same is true of international commercial policy and many other economic policies that come under government purview. The real question is not, therefore, whether the government shall have great powers over the monetary system—it has them whether it wants them or not. The real question is whether it will recognize its inevitable possession of many powers, and whether it will use them wisely and in a coordinated way to achieve socially desirable objectives.

GUIDES TO MONETARY POLICY

We have seen that the broad and basic objective of monetary policy should be to secure an appropriate flow of money expenditures so as to maintain a continuously high level of employment and a relative stability of price levels. This objective should be kept constantly in mind by the monetary authorities, but it is admittedly not an adequate operating guide. Are there more immediate objectives or guides that will direct these authorities to the proper policies? We shall analyze several of those that have been proposed.

Stabilization of the Monetary Unit in Terms of One Commodity

The immediate objective of monetary policy that has probably enjoyed the widest acceptance and use in modern times, though its popularity is waning, has been the stabilization of the monetary unit in terms of some one commodity, or in some cases of two commodities. These commodities have usually been gold or silver, or both. Under a gold standard the value of each unit of every kind of money in use is kept equal to the value of a stipulated amount of gold. Under the silver standard the monetary unit is stabilized in terms of silver. And under bimetallism money is stabilized in terms of both metals.

It is evident that stability of a money in terms of gold (or

silver) is of no special importance in and of itself; a case can be made for this immediate objective only if it can be shown that it induces money to behave in such a way as to facilitate trade. Many advocates of the gold standard insist that it does just this; it facilitates trade, both international and domestic. It is supposed to facilitate international economic transactions by stabilizing exchange rates between moneys. When monetary units are kept constant in terms of gold, the exchange rate between them is relatively fixed and can vary only by an amount measuring the costs of transporting gold from one country to the other. And this stability of exchange rates encourages the international flow of commodities and capital funds by eliminating the risks and uncertainties that would attend fluctuations in these rates. We must remember, however, that stability of exchange rates is assured only as long as the value of all the money involved is fixed in terms of gold; a money that is kept constant in these terms is still free to fluctuate in terms of paper and silver standard money. This argument for stabilizing a nation's monetary unit in terms of gold can be valid, therefore, only if other commercially important nations also operate under a gold standard; it cannot be used to support the maintenance of a gold standard by one country alone. And, as we have seen, it is by no means certain that fixed exchange rates over long periods are desirable if the various countries follow different domestic monetary policies.

Advocates of a gold standard frequently argue that stabilization of money in terms of gold also tends to facilitate domestic trade, and that it does this by militating against "excessively" inflationary and deflationary monetary policies. To prevent their money from depreciating in terms of gold, countries must refrain from "excessive" expansions of the money supply. And to prevent it from appreciating in terms of gold they must refrain from "excessive" restrictions of the money supply. Even if it is admitted that keeping money constant in terms of gold prevents errant monetary authorities and commercial bankers from indulging in the grossest excesses of inflation and deflation, no one can reasonably contend that such a policy points the way to anything like an

ideal behavior of money. Experience has demonstrated many times that money that is stable in terms of gold can still undergo wide fluctuations in purchasing power and can fail to behave in the manner most conducive to the attainment and maintenance of full employment.

At its best, therefore, the immediate objective of stabilizing the monetary unit in terms of gold is inadequate; though it may prevent money from behaving in some undesirable ways, it does not indicate precisely the way it should behave. To supply more specific guidance some other immediate objective is necessary. Recognizing this fact, more and more of the countries that have maintained a gold standard have also attempted to manage their money in such a way as to secure greater stability of prices or of business activity, or some other objective that is more conducive to full and stable employment than is the mere stabilization of money in terms of gold. This raises a series of important questions. Is it possible to maintain money constant in terms of gold and at the same time to manage it in the way most likely to achieve and maintain economic equilibrium, or does the one preclude the other or at least make its achievement more difficult? And if the stabilization of money in terms of gold (or some other one commodity) does militate against the attainment of other monetary objectives, should not the attempt to stabilize money in terms of gold be abandoned?

Stabilization of the Price Level

A criterion of monetary policy that has enjoyed considerable support is the stabilization of the price level. This policy has been urged by a sizable group of economists; bills which sought to impose upon the Federal Reserve System a legal obligation to employ all its powers to this end have been introduced and advocated repeatedly, though unsuccessfully, in Congress. In 1933 President Roosevelt stated as the monetary objective of his administration, "When we have restored the price level, we shall seek to establish and maintain a dollar that will not change its purchasing and debt-paying power within the succeeding generation."

Actual experience appears, at least at first sight, to lend support to the contention that price stabilization is an appropriate guide to monetary policy. Periods of falling prices, particularly of rapidly falling prices, have virtually always been periods of economic stagnation as well as of arbitrary shifts in wealth and income. Periods of rising prices, though not cursed by a contemporary decline in production, have also witnessed sizable shifts in the distribution of wealth and income and have usually been followed by business breakdowns. Only periods of relatively stable prices have been able to combine an active and stable prosperity with a largely neutral effect on distribution. The easy deduction from experience, therefore, is that a policy aimed at stabilizing prices is likely to be most effective in achieving the ultimate objectives of money. Unfortunately, this criterion must be rejected as inadequate and in some cases actually misleading. Before criticizing it further, however, we must recognize its merits. These are two: (1) It directs attention to the evils of gratuitous fluctuations in prices. (2) In a large proportion of cases it would indicate the proper general type of monetary policy to be followed. The monetary authority would rarely go wrong in adopting a liberal money policy in the face of falling prices or a restrictive policy in the face of rising prices. Criteria used in the past have apparently not provided even this amount of guidance. But despite its merits, price stabilization cannot be accepted as an unerring guide.

There are three principal criticisms of this criterion. The first finds fault with the vagueness of the advocates of price level stabilization rather than with the criterion itself if properly defined. What price level should be stabilized? Retail prices? Wholesale prices? The cost of living? Wages? Security prices? A composite index including the prices of everything sold for money, such as the P of the transactions type of quantity theory? When the science of index numbers was in its infancy and less was known about the behavior of prices, it was usually assumed that all types of index numbers that were at all comprehensive would behave in about the same way regardless of their inclusiveness and weighting. Now it is known that various types behave quite differently; hence the

monetary policy counseled might vary considerably according to whether one or another type of index was chosen as a guide. This point was noted by a member of the Federal Reserve Board in 1928 in opposing a bill ordering the System to stabilize the price level. "For example, in the period from 1925 to 1927 the Bureau of Labor wholesale indexes show a price decline of about 12 per cent; but if you take the curve of the cost of living, the decline was barely 2 per cent. If you take a composite index like Mr. Snyder's there was hardly any decline at all."¹ It is even possible to find periods in which some price indexes rose while others declined. As indicated at the beginning of this paragraph, however, this criticism is more properly leveled against the vagueness of the proponents of price stabilization than against the criterion itself and does not apply when the price index to be stabilized is carefully defined. Several recent writers have met this objection by urging that the average prices of the current output of finished goods be stabilized; for it is with reference to these prices relative to costs of production that enterprisers decide upon the volume and types of output to be undertaken, and it is these things for which money incomes are largely, though not in their entirety, spent.

But even after the criterion has been defined clearly it is still subject to criticisms. The second one grows out of the fact that price level fluctuations are in their first appearance a symptom rather than a cause of economic instability and as a symptom may appear clearly enough to be recognized and to indicate the need for action only after the disease of which it is a manifestation has already made considerable headway. The "cause" or "causes" behind the initial rise or fall in the price level of output is, of course, an expansion or contraction of money demand relative to the physical quantity of finished output offered for sale. Most of the economists advocating price stabilization have recognized this fact but have dismissed it as of little importance; this they do because of their belief that the symptom, price changes, will appear almost simultaneously with its underlying causes and will thereby sound the signal for action before serious damage is done.

¹ Statement of Mr. Hamlin in hearings on H.R. 11806 (1928), p. 393.

Such a belief rests upon the assumption that perfect or near-perfect competition rules in most industries and that prices are highly sensitive to underlying changes. Under these assumed conditions it would undoubtedly be true that shifts in the money demand for output would be almost immediately manifested in price changes and that the volume of production would be affected only later and as a consequence of price changes.² As indicated earlier, however, the economic systems of the western world are to a considerable extent systems of insensitive prices and sensitive production. The growth in size of the individual firm, the rise of the trade association, cartelization, the use of policies of price leadership, legalization of price maintenance, government price fixing—all these and other influences as well have contributed to the inflexibility of prices and have probably increased the extent to which fluctuations in money demand are manifested in production and employment rather than in prices.

It was partly because of a belief that the price level gives its counsel too late to permit the use of preventive measures and at the most can only point the way to remedial action that the Federal Reserve rejected price stabilization as the criterion of credit policy. As the Federal Reserve Board stated in 1923, "Credit administration must be cognizant of what is under way or in process in the movement of business before it is registered in the price index. The price index records an accomplished fact."³

The third criticism of price stabilization as a criterion of monetary policy is that it does not differentiate between disequilibrating and equilibrating changes in the price level of output. Those advancing this criticism do not defend all price fluctuations; they readily admit that some—even most—of these fluctuations that have occurred in the past have been disturbing influences and ought to have been prevented. In this category they include all variations in the prices of output that are traceable to expansions and contractions of the money

² Under conditions of perfect competition each enterpriser would assume that he could sell an unlimited amount of his product at the market price, and a shift in the demand for his product would necessarily take the form of a change in the market price.

³ *Annual Report of the Federal Reserve Board, 1923*, p. 32.

supply, to hoarding and dishoarding of money, and to fluctuations in the physical volume of trade caused by changes in the aggregate supply of available factors of production—the increase in the working population, the opening of new land, and the accumulation of capital. They emphasize, however, that price changes attributable to changes in the real efficiency of production are in a different category. Price changes paralleling changes in real costs of production are not incompatible with the maintenance of normal profit margins and of full and stable employment; rather, they must be allowed to occur if disequilibrium is to be avoided. We shall deal here only with increases in the efficiency of production, for it is this case that is significant in a progressive economy.

Increases in the real efficiency of production may be effected in many ways; among these are new inventions, a wider use of inventions already in existence, better techniques of business organization and management, a greater vigor and intelligence of workers and managers, and an improvement in labor relations that reduces *ca' canny* and sabotage. But whatever its cause, any expansion of the average output per productive factor must, in the absence of a proportional rise in the average money reward to productive factors, lower the money cost per unit of output. This can be shown by a hypothetical example. Suppose that in the original situation 100 units of productive factors produce 100 units of output per period and receive in return \$90; the average cost of production per unit of output is 90¢. This output is sold at an average price of \$1; hence the enterprisers' profit margin is 10¢ per unit. This situation is then altered by a 10 per cent rise in the real efficiency of production, so that the same aggregate of productive factors can produce 110 units per period. If the aggregate money reward to the productive factors remains unchanged, the money cost per unit will fall to 82¢ ($90/110 = 82$); the selling price per unit could fall to 92¢ without shrinking the enterprisers' 10¢ margin. In fact, if the price of output is maintained at \$1 and the average rate of pay to the productive factors does not rise, enterprisers' profits will be inflated to 18¢ per unit. Thus, enterprisers' profit margins can be abnormally widened just as surely by maintaining selling prices

constant in the face of declining costs as by raising selling prices while costs lag behind. And in both cases the resulting business boom must collapse when, as will happen sooner or later, profit margins are again narrowed by the rise of cost levels relative to selling prices.⁴ It is evident that this criticism of price stabilization would not apply if productive factors received money rates of pay that always varied directly with their productivity. But such behavior of cost levels cannot be depended upon in our economy.

Several economists who believe that the behavior of prices furnishes the most useful criterion of monetary policy but who admit the validity of the first and third—particularly the third—of the above criticisms of price stabilization have recently advocated that money be so managed as to cause the price level of output to vary only in response to changes in the efficiency of production. If this were done successfully, price levels of output would vary directly with real costs. This criterion is superior, theoretically if not administratively, to that of price stabilization. Yet despite its superiority it, too, is subject to the second criticism advanced above against price stabilization—that price changes are a symptom rather than a fundamental cause, and that as a symptom they are likely to appear too late to prescribe preventive action and perhaps too late to call forth effective remedial action. Since prices are only symptoms and since it is the magnitude of the money demand for output that is of fundamental importance, it would seem desirable to use not prices but the behavior of the money demand for output as the criterion of monetary policy. The immediate criterion should be the establishment and maintenance of the volume of money demand for output that will come nearest to securing full and steady employment. How-

⁴ The same conclusion is arrived at by another line of reasoning. Some analysts point out that selling prices can be buoyed up in the face of increased efficiency only by an excess of investment over savings, which involves an abnormal stimulation of the investment goods industries. When the injection of new money to maintain prices is stopped or even slackened significantly, investment is discouraged, which may well bring about a recession not only in the investment goods industries but elsewhere as well. For a good brief discussion of this problem, see E. F. M. Durbin's treatment in G. D. H. Cole, *What Everybody Wants to Know About Money*, Knopf, New York, 1934, pp. 261-268.

ever, before discussing this criterion further it is necessary to examine other intermediate guides which have been suggested and which, though they are neither adequate nor trustworthy, do call attention to disturbances to be avoided.

Stabilization of the Quantity of Money

A criterion that has sometimes been suggested, though it has never enjoyed more than a small sponsorship among economists, is that of stabilizing the quantity of money. According to this proposal, the immediate goal of monetary policy should be to hold constant the aggregate quantity of money, including both cash and circulating bank deposits. It requires no detailed analysis to discover that this criterion is not the proper one to adopt. A constant supply of money would not by any means insure a properly behaving money demand for output. This money demand would still fluctuate because of hoarding and dishoarding, and it would be highly unlikely to expand enough to take off the market at remunerative prices the increased output made possible by the growing supply of labor and other productive factors.⁵ The appropriate monetary policy demands not a constant quantity of money, but a quantity of money that varies in the way most conducive to attaining the desired behavior of the money demand for output.

Though it is unacceptable as a guide to monetary policy, this criterion does focus attention upon the evil effects of inappropriate fluctuations in the money supply. In fact, it appears to have originated as a protest against the arbitrary and capricious expansions and shrinkages of money which too often have been responsible for initiating disturbances and for aggravating and prolonging disturbances that originated elsewhere in the economy. Its positive contribution is to condemn

⁵ The same conclusion is arrived at regardless of the type of monetary theory used for purposes of analysis. In terms of the transactions type of quantity theory, a constant M in the face of fluctuations in either V or T , or both, would permit P to fluctuate. According to the cash balance approach, a constant money supply in the face of a fluctuating demand for money would allow the value of money to fluctuate. The commodity theory arrives at the same conclusion through an analysis of the supply of and demand for gold.

all variations in the money supply that cannot be shown to be conducive to the attainment of continuous full employment.

Stabilization of Total Money Expenditures (MV)

A fourth criterion of monetary policy that has been suggested is stabilization of the rate of money expenditures for all goods, services, and securities—the MV of the equation of exchange. This criterion is also stated as “stabilization of the effective supply of money.” As an objective it is superior to that of stabilizing the quantity of money alone, for it recognizes that the volume of money expenditures is influenced by fluctuations in the velocity as well as in the quantity of money. Nevertheless, it is too inexact to be acceptable. To stabilize money expenditures for everything entering into T —services and all types of goods and securities, both new and second-hand—does not by any means insure a proper behavior of the money demand for new output. In fact, the stabilization of MV would almost certainly be accompanied by fluctuations in the money demand for new goods and services. If this criterion were adopted in an economy that is expanding in population and capital supply, the long-term increase in trade between the different stages of the productive process and in secondhand securities, real estate, and other goods would absorb progressively larger amounts of expenditures and would leave progressively smaller amounts to be spent for current output. Over longer periods, then, a constant MV —even if it could be maintained—would probably be accompanied by a declining demand for new output. And during shorter periods, increases and decreases in expenditures for these other elements of trade would leave alternately smaller and larger amounts to be spent for current output.

Stabilization of the Money Demand for the Current Output of Finished Goods and Services

One who accepts the view expressed above, that the money demand for finished output occupies a key position in the economic process, is likely to conclude that the monetary

policy most conducive to the attainment of continuous full employment is that aimed at stabilizing the money demand for the current output of finished goods and services. This would probably be the most satisfactory policy for a static economy with a stable productive capacity. A constant money demand for a constant quantity of real finished output would, if cost levels remained properly adjusted, permit the maintenance of enterprisers' profits and give them no incentive to reduce their scope of operations. Incidentally, it would also maintain a stable price level for finished output.

A policy of stabilizing the total money demand for finished output would also be the most satisfactory one for an economy in which productive capacity was expanding, if this expansion of output were imputable solely to an enhancement of the real efficiency of production, that is, to an increase in the average output per unit of productive factors. This again assumes that there is no advance in the average money cost per unit of productive factors. In this case, as in the static economy, the maintenance of a stable aggregate money demand for finished output while aggregate money costs remained constant would permit the maintenance of enterprisers' profits. It would, of course, necessitate a decline in the price level of finished output, but this decline in selling prices would be offset by that of money costs per unit, so no deflation of enterprisers' net returns would be effected.

Increase in the Money Demand for Output in Proportion to the Supply of Productive Factors: Stabilization of the Average Money Income per Unit of Productive Factors

Although stabilization of the total money demand for finished output is probably the most satisfactory monetary policy when productive capacity remains constant or even when it is increasing as a consequence of advances in the real efficiency of production, it is too ascetic for use when capacity for output is expanding as a result of accretions to the supply of productive factors. The maintenance of a constant money demand for finished output in the face of a rising supply of productive agents in the form of labor, land, and capital is

liable to be deflationary and to retard the absorption of these additional productive facilities into the economic process. With a fixed level of money receipts for finished output, which would be the case if the money demand for output remained constant, enterprisers could not raise the aggregate of their cost payments without suffering a shrinkage of their profits. And the employment of additional agents of production would entail an increase in aggregate money costs if the average money reward to the productive factors failed to decline in inverse proportion to the increase in their supply. In a perfectly competitive, frictionless economy it might be feasible to rely upon such a decline of money costs to maintain enterprisers' profits and to make remunerative the employment of additional productive agents. But in an economy characterized by sluggish costs, this policy is not feasible.

In an economic system in which rates of pay to productive factors can be reduced only slowly, the money demand for finished output should be expanded at a rate equal to the rate of increase in the supply of productive factors so that entrepreneurs could absorb all the available factors of production, pay them a constant average rate of money reward per unit, and still maintain their profits. In other words, the money demand for finished output should be raised at such a rate as to insure the maintenance of a stable average money income per unit of productive factors. In terms of the income type of quantity theory, this would require an increase in MX , the total of money expenditure for finished output. In terms of the income and expenditure theory, it would necessitate an excess of investment over savings, which could be effected by dishoarding, or by an increase in the money supply, or by some combination of the two. If this criterion of stabilizing the average money income per unit of productive factors were adopted, the price level of output would be permitted to decline in response to advances in the real efficiency of production but not for any other reason.

The adoption of this criterion and even the realization of its immediate objectives would not, it must be emphasized, insure the attainment and maintenance of full and stable employment. This coveted state could still fail to be attained

owing to obstacles of a non-monetary character. Such a policy would, however, do everything that can reasonably be demanded of money; it would prevent money from originating disturbances and from responding in such perverse ways as to aggravate and prolong disturbances originating in other sections of the economy. Even the best monetary system conceivable would be unable to effect unaided all the various types of adjustments that are continually required in a dynamic economic system and that too often are thwarted by the activities of private or public groups.

METHODS OF SECURING THE PROPER BEHAVIOR OF MONEY DEMAND FOR OUTPUT

Though the primary purpose of this chapter was to examine the objectives of monetary policy and to discover how money should behave, it seems desirable to outline briefly some of the problems involved in selecting and developing methods to be used in the attainment of these objectives. How is the proper behavior of the money demand for output to be achieved? By purely monetary measures? If so, by what types of monetary measures? By non-monetary measures, and if so by what types? Or should both monetary and non-monetary measures be employed?

Monetary Measures for Controlling the Money Demand for Output

It is evident that control of the money supply is a necessary though perhaps not a sufficient condition for the attainment and maintenance of a properly behaving money demand for output. The necessity for at least some government regulation of the money supply has long been admitted even by those most vehemently opposed to government intervention in other economic matters. Many economists doubt, however, that government and central bank officials will ever be able to exercise the necessary degree of control as long as the money supply depends to such a great extent upon the lending and investing operations of commercial banks. There can be

no question as to the ability of these officials to limit an expansion of the money supply within the present banking structure if they proceed intelligently and courageously; by increasing the reserve requirements of commercial banks and by curtailing the available volume of reserves they can force the banking system to limit its creation of money. They can also be practically certain that in periods of optimism the banking system will not permit excess reserves to accumulate and that it will expand its credit on the basis of any increase in reserves or any decrease in reserve requirements that they see fit to allow. But they are likely to be less successful in preventing a decrease or inducing an increase in the money supply in periods in which expectations are unfavorable. At such times an increase in bank reserves or a lowering of the reserve requirements of banks makes possible but does not force an expansion of bank credit. As one writer has put it, though a balloon cannot rise if its mooring rope is not slackened, a slackening of the rope will not push up a balloon that is heavier than air. And, unfortunately, it is at the very time that these unfavorable circumstances exist that the monetary authorities should increase the money supply to offset, at least to some extent, current hoarding.

For these reasons many economists have come to believe that an appropriate monetary policy cannot be expected from commercial banks operating under the types of laws and management now existing. In the first place, they note that existing reserve laws—which fix reserve requirements solely on the basis of the volume of deposits and without reference to velocity—would not indicate to bankers the proper policy to be followed even if the primary interest of these officials were in securing an appropriate behavior of the money supply. And in the second place, bankers are primarily interested not in their effect on the money supply but rather in the other of their dual functions—lending and investing in securities. There are several reasons for this. Many bankers do not understand their ability to alter the money supply; it is still common for them to insist that they do not manufacture money but “merely accept deposits and lend out the proceeds.” Moreover—and this is probably a more powerful

factor in diverting their attention from their influence on the money supply—the larger part of bank earnings is derived from loans and investments, and the purpose of a bank, from the point of view of its owners, is to make profits.

To some critics these flaws in the commercial banking system appear so fundamental as to demand a basic reform. The proposal for sweeping bank reform that has been most widely discussed in recent years is that which would establish “100 per cent banking.”⁶ In the interest of a more accurate control of the money supply the advocates of this reform propose that the present functions of the commercial banks be divided among three bodies: a central monetary authority, a system of checking banks, and a system of lending and investing institutions. The central monetary authority, which would be a non-profit governmental body, would possess the sole power to issue and withdraw money. The checking banks would exist only for the purpose of clearing checks, of transferring the ownership of deposits from payer to payee, and of maintaining free interconvertibility of cash and deposits; they would have to maintain with the central monetary authority reserves equal to 100 per cent of their deposits, and they would not be permitted to make loans and investments or in any other way to influence the quantity of money. The lending and investing institutions would not be permitted to issue money; their function would be to gather the voluntary savings of the community and to facilitate their flow into investment. And the amount that they could lend would be limited to the amount of voluntary savings that they could gather.

It is not possible to evaluate here the merits of the proposal for “100 per cent banking.” The suggested plan was introduced at this point only to indicate the nature and extent of the structural changes in banking that many economists believe necessary before the quantity of money can be subjected to continuous and accurate control.

Even assuming, however, that the quantity of money is by

⁶ Though plans of this type were formulated independently and at about the same time by several people, the clearest exposition of the structure and rationale of the proposed system is that by Irving Fisher in his book, *100% Money*, Adelphi, New York, 1935.

some means brought under continuous and accurate control, we are still faced with a fundamental question: Would it be feasible to control the money demand for finished output solely by controlling the quantity of money? As has been stated several times, the money demand for finished output can vary not only because of fluctuations in the money supply, but also because of hoarding and dishoarding, or, as the income type of quantity theory would put it, because of variations in the circuit velocity of money. If the money supply were brought under control and prevented from aggravating business fluctuations, the variations in the circuit velocity would probably be narrowed considerably, though they would certainly continue to exist. Would it be feasible to counteract such dishoardings and hoardings as still persisted by shrinking and expanding the money supply? It seems probable that the monetary authority, by contracting the quantity of money, could prevent dishoarding from raising consumption and investment above the desired level. On the other hand, less success could be expected from attempts to offset hoarding by an expansion of the quantity of money; this is particularly true after expectations have deteriorated. At such times the newly created money is likely to be saved, especially if it is put into the hands of persons or institutions that will not use it for consumption, and drained off into hoards instead of flowing into investment. This is because, when enterprisers' expectations of profits are unfavorable, a rate of interest that is low enough to make profitable the volume of investment required to raise the community's money income to the desired level is likely to be so low that members of the community will not make their investable funds available for use. The hoardability of money without cost under our present laws permits the withholding of investable funds from the market and prevents interest rates from declining far enough to raise investment to the level required for full employment.

To some economists the remedy for this situation is evident. If the costless hoardability of money is responsible for keeping interest rates too high and depressing the money demand for output, it should be ended; hoarding should be made so ex-

pensive that holders of money will either spend it for consumption or make it available for investment at whatever rates of interest they can obtain.⁷ This, these economists contend, should be done by taxing the holding of money. The tax imposed should increase with the length of time that money is held, and money held more than a stated period of time might even be confiscated. In this way the socially harmful bargaining advantage granted to money hoarders by the existing monetary laws would be removed, people would be forced to make all their savings available at interest rates as low as are necessary to clear the market—perhaps even at negative rates in periods of depressed demand for investable funds—and the rate of spending would be prevented from falling.

No judgment as to the feasibility of employing taxation to control the velocity of money is possible at this time. A thorough theoretical analysis of the plan is still lacking, and past experiments with it have covered such small areas and such short periods of time as to make them inconclusive.

Non-Monetary Measures for Controlling the Money Demand for Output

We do not yet know with what degree of success purely monetary measures can be used to control the money demand for output. Monetary authorities have not utilized the various instruments that they now possess with sufficient courage and energy to indicate how effective these can be, and we can only guess at the probable effectiveness of the new instruments of control that might be added to their equipment. It is, however, virtually certain that monetary authorities armed only with their present weapons will fail to achieve the desired

⁷ Though it is hazardous to allocate authorship of economic ideas, the proposal to make the hoarding of money expensive seems to have originated with Silvio Gesell. A complete account of his views is presented in his book, *The Natural Economic Order*, Free Economy Publishing Co., 1930. The proposal was available in German as early as 1906, however. A short exposition and analysis of Gesell's plan is given by H. T. N. Gaitskell in G. D. H. Cole's *What Everybody Wants to Know About Money*, Knopf, New York, 1934, pp. 311-324. A well-reasoned and brilliantly written book presenting a proposal of this type is Arthur Dahlberg's *When Capital Goes on Strike*, Harper, New York, 1938.

degree of control if they must combat antagonistic economic policies of a non-monetary character. They cannot reasonably be expected to control the aggregate of consumption and investment if governmental agencies speed up their investment in prosperity periods and reduce their demand for savings during depressions; if existing policy encourages or even countenances excessive speculation in the securities markets, with its effects on expectations, consumption habits, and security issues; if monopoly power exists and selling prices are kept so inflexible that shifts in demand exert most of their effects on the volume of production and employment; if wages and other costs are determined without due attention to their effects on enterprisers' profits and the amount of employment; if taxation is made to bear most heavily upon enterprise during depressed periods; and if international commercial policies shut off markets at the very time that they are needed most. Purely monetary measures cannot reasonably be expected to achieve their objectives if they must continually combat such unfriendly economic policies. Economists are coming to believe more and more that the economic problems of instability can be solved only if they are attacked simultaneously on all fronts by a number of coordinated and mutually reinforcing measures. An appropriate monetary policy must be included as an essential part of this integrated program.

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